

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 59
Edition : 23.08.91
Replaces : 08.90
Test oil : ISO-4113
Combination no. : 0 403 446 219
Injection pump
Pump designation : PES6MM100/72ORS1120
EP type number : 0 413 406 112
Governor
Governor design. : RQV300...1300MW59-1
Governor no. : 0 420 083 181

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kW : 141.7
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

A01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
travel mm : 9.50...9.90

2nd speed rpm : 1350
travel mm : 8.50...8.70

3rd speed rpm : 500
travel mm : 2.70...3.30

4th speed rpm : 300
travel mm : 0.70...1.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 200
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement
Speed f 1/min : 500

1st pressure hPa : 280
Rack travel in m: 11.30...11.60
2nd pressure hPa : 310
Rack travel in m: 11.80...11.90
3rd pressure hPa : 1000
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 73.0...76.0
1000 s: (70.5...78.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 2
 Edition : 21.08.91
 Replaces : 04.90
 Test oil : ISO-4113
 Combination no. : 0 403 446 220
 Injection pump
 Pump designation : PES6MW100/32ORS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1400MW80-3
 Governor no. : 0 420 083 183

Customer-spec. information
 Customer : RVI

Engine : MIDR 06.02.12D

1st version kW : 134.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

A03

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 9.2...9.4

100 s: (9.0...9.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.5

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1590

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 750

Del.quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 10.10

Speed rpm : 1470...1480
2nd rack travel in: 4.00
Speed rpm : 1590...1620
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 5.10...5.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.60...8.70

Measurement

Speed 1/min : 500

1st pressure hPa : 80
Rack travel in m: 9.00...9.10
2nd pressure hPa : 200
Rack travel in m: 10.50...10.80
3rd pressure hPa : 750
Rack travel in m: 11.10...11.20

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 900
Del. quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 42.0...44.0
1000 s: (40.0...46.0)

BREAKAWAY

AQ4

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1470...1480

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 95.0...115.0
1000 s: (92.0...118.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.50
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark made with
prestroke 3.00...3.10 mm at barrel 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 8,1 D
 Edition : 18.09.91
 Replaces : 06.91
 Test oil : ISO-4113

Combination no. : 0 403 446 249

Injection pump
 Pump designation : PES6MM100/72ORS1197
 EP type number : 0 413 406 185
 Governor
 Governor design. : RQV325...1350MM109K
 Governor no. : 0 420 083 997

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8060.45.6000

1st version kW : 169.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 7.7...7.9
 Del.quantity cm³/ : 2.5...2.9

100 s: (2.2...3.1)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 10.00...10.40

2nd speed rpm : 825
 travel mm : 4.90...5.10

3rd speed rpm : 400
 travel mm : 2.90...3.50

4th speed rpm : 325
 travel mm : 1.50...1.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1350
 Aneroid pressure h: 850
 Del.quantity : 100.0...102.0
 1000 : (98.0...104.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:

1st rack travel in: 13.00
Speed rpm : 1410...1420
2nd rack travel in: 4.00
Speed rpm : 1515...1545
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.8

Testing:

Speed rpm : 200
Minimum rack trave: 10.00
Speed rpm : 325
Rack travel in mm : 7.70...7.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 14.00...14.10
2nd speed rpm : 1200
Rack travel in m: 13.60...13.80
3rd speed rpm : 1000
Rack travel in m: 13.20...13.50
4th speed rpm : 700
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 450
Rack travel in m: 11.70...11.80
2nd pressure hPa : 650
Rack travel in m: 12.80...13.10
3rd pressure hPa : 850
Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 850
Speed rpm : 1200

Del.quantity cm3/ : 100.0...103.0
1000 s: (97.5...105.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 850
Speed rpm : 1000
Del.quantity cm3/ : 100.5...103.5
1000 s: (98.0...106.0)
Aneroid pressure h: 850
Speed rpm : 700
Del.quantity cm3/ : 101.5...104.5
1000 s: (99.0...107.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 77.5...79.5
1000 s: (75.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1410...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 65.0...85.0
1000 s: (62.0...88.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 25.0...29.0
1000 s: (22.5...31.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 G 1
 Edition : 14.12.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 269
 Injection pump
 Pump designation : PES6MM100/320RS1154
 EP type number : 0 413 406 144
 Governor
 Governor design. : RQV275...1250MW113-1
 Governor no. : 0 420 083 233

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 P
 1st version kW : 124.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 033
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 16.50...19.50

A07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00
 & maximum rack tra: 18.00
 Difference ° CS : 2.24...2.26

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 12.20...12.30
 Del. quantity cm³/ : 9.1...9.3
 100 s: (8.9...9.5)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 275.0
 Rack travel in mm : 6.30...6.50
 Del. quantity cm³/ : 2.5...2.9
 100 s: (2.2...3.1)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475
 travel mm : 9.20...9.60
 2nd speed rpm : 1300
 travel mm : 7.80...8.00
 3rd speed rpm : 500
 travel mm : 3.00...3.60
 4th speed rpm : 275
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1360
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000

Del.quantity : 91.0...93.0
1000 : (89.0...95.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 11.20
Speed rpm : 1320...1340
2nd rack travel in: 4.00
Speed rpm : 1460...1500
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 275
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.10
2nd pressure hPa : 135
Rack travel in m: 11.30..11.40
3rd pressure hPa : 180
Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

A08

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 81.5...84.5
1000 s: (79.0...87.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1320...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 25.0...29.0
1000 s: (22.5...31.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 6,2 F
 Edition : 18.09.91
 Replaces : 05.91
 Test oil : ISO-4113

Combination no. : 0 403 446 281

Injection pump
 Pump designation : PES6MM100/72ORS1217
 EP type number : 0 413 406 207
 Governor
 Governor design. : RQ300/1000MM116
 Governor no. : 0 420 082 056

Customer-spec. information
 Customer : MWM

Engine : TBD226B-6

1st version kW : 150.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00

A09

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 14.4...14.6

100 s: (14.2...14.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.2

Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100

travel mm : 7.30...7.70

2nd speed rpm : 1000

travel mm : 5.90...6.10

3rd speed rpm : 370

travel mm : 4.70...5.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 144.0...146.0

1000 : (142.0...148.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.50
Speed rpm : 1040...1055
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.1

Testing:
Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 7.00...7.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 9.50...9.70
2nd pressure hPa : 650
Rack travel in m: 11.60...11.80
3rd pressure hPa : 1200
Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750

Del.quantity cm³/ : 143.5...146.5
1000 s: (141.0...149.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 64.0...66.0
1000 s: (62.0...68.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 95.0...105.0
1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.20
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 8,1 D 1
 Edition : 20.09.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 446 284

Injection pump
 Pump designation : PES6MM100/72ORS1197
 EP type number : 0 413 406 185
 Governor
 Governor design. : RQV325...1250MM109-1
 K
 Governor no. : 0 420 083 995

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8060.45.6090

1st version kW : 167.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.50...14.60

Del. quantity cm³/ : 10.5...10.7

100 s : (10.3...10.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 7.3...7.5

Del. quantity cm³/ : 2.0...2.4

100 s : (1.7...2.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 10.00...10.40

2nd speed rpm : 825

travel mm : 4.90...5.10

3rd speed rpm : 400

travel mm : 2.90...3.50

4th speed rpm : 325

travel mm : 1.50...1.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del. quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.50
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.4

Testing:

Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 325
Rack travel in mm : 7.30...7.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.50...14.60
2nd speed rpm : 1100
Rack travel in m: 14.20...14.40
3rd speed rpm : 900
Rack travel in m: 13.60...13.80
4th speed rpm : 700
Rack travel in m: 13.50...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 450
Rack travel in m: 11.70...11.80
2nd pressure hPa : 700
Rack travel in m: 12.80...13.10
3rd pressure hPa : 1000
Rack travel in m: 13.50...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1100
Del.quantity cm3/ : 108.0...111.0
1000 s: (105.5...113.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 900
Del.quantity cm3/ : 105.5...108.5
1000 s: (103.0...111.0)
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 106.5...109.5
1000 s: (104.0...112.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 75.5...77.5
1000 s: (73.5...79.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 40.0...60.0
1000 s: (37.0...63.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 J
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 285
 Injection pump
 Pump designation : PES6MM100/32ORS1214
 EP type number : 0 413 406 204
 Governor
 Governor design. : RGV275...1250MM115K
 Governor no. : 0 420 083 994

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 W
 1st version kW : 151.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 16.50...19.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 14.0...14.1
 Del.quantity cm³/ : 11.4...11.6
 100 s: (11.2...11.8)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 275.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 2.0...2.4
 100 s: (1.7...2.6)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330
 travel mm : 9.80...10.20
 2nd speed rpm : 950
 travel mm : 6.90...7.10
 3rd speed rpm : 550
 travel mm : 3.60...4.20
 4th speed rpm : 275
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000
 Del.quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 294...302

Testing:

1st rack travel in: 13.00

Speed rpm : 1320...1330

2nd rack travel in: 4.00

Speed rpm : 1465...1495

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 244...252

Setting point w/out bumper spring

Speed rpm : 275

Rack travel in mm : 7.9

Testing:

Speed rpm : 200

Minimum rack trave: 7.70

Speed rpm : 275

Rack travel in mm : 6.0...6.2

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.00...14.10

2nd speed rpm : 700

Rack travel in m: 13.10...13.20

3rd speed rpm : 1000

Rack travel in m: 13.40...13.60

4th speed rpm : 500

Rack travel in m: 12.70...12.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1000

Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 200

Rack travel in m: 11.30...11.60

3rd pressure hPa : 320

Rack travel in m: 12.20...12.30

START CUT-OUT

A14

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 700

Del.quantity cm3/ : 107.5...110.5

1000 s: (105.0...113.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 70.5...72.5

1000 s: (68.5...74.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 88.0...102.0

1000 s: (85.0...105.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275

Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 20.0...24.0

1000 s: (17.5...26.5)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

:

Start-of-delivery blocking at start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 K
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 286
 Injection pump
 Pump designation : PES6MM100/32ORS1216
 EP type number : 0 413 406 206
 Governor
 Governor design. : RGV350...1175MW113-2
 Governor no. : 0 420 083 248

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 X

1st version kw : 166.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 11.50...14.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Del.quantity cm3/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 7.80...8.20

2nd speed rpm : 1220

travel mm : 6.80...7.00

3rd speed rpm : 600

travel mm : 3.20...3.80

4th speed rpm : 350

travel mm : 0.70...1.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1460

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 1000

Del.quantity : 117.0...119.0

1000 : (115.0...121.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 294...302

Setting point:
Speed rpm : 1460
Rack travel in mm : 16.5

Testing:
1st rack travel in: -1.00
Speed rpm : 1250...1260
2nd rack travel in: -9.80
Speed rpm : 1460...1490
3rd rack travel in: 4.00
4th rack travel in: 1600
Speed rpm : -13.80...-12.

LOW IDLE 1
Control lever
position degrees: 244...252
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 8.1

Testing:
Speed rpm : 200
Minimum rack travel: -7.00
Speed rpm : 275
Rack travel in mm : -8.00...-8.20
Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000

Measurement
Speed 1/min : 500
Rack travel in m: -4.20...-4.40
2nd pressure hPa : 240
Rack travel in m: -3.40...-3.70
3rd pressure hPa : 600
Rack travel in m: -0.40...-0.50

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700

Del.quantity cm³/ : 124.0...127.0
1000 s: (121.5...129.5)
Spread cm³ : 5.00
1000 s: (7.)
Speed rpm : 500
Del.quantity cm³/ : 60.0...62.0
1000 s: (58.0...64.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: -1.00
Speed rpm : 1250...1260

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : -8.00...-8.20
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 6
 Edition : 18.09.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 446 289

Injection pump
 Pump designation : PES6MW100/72ORS1131-1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RGV300...1300MW50-21
 Governor no. : 0 420 083 253

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kw : 177.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.00...9.40

2nd speed rpm : 1350

travel mm : 8.10...8.30

3rd speed rpm : 650

travel mm : 4.70...5.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 13.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1500...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1000
Rack travel in m: 14.40...14.50

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 104.0...107.0
1000 s: (101.5...109.5)
Spread cm³ : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 J 1
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 291
 Injection pump
 Pump designation : PES6MW100/32ORS1214
 EP type number : 0 413 406 204
 Governor
 Governor design. : RQV275...1250MW115-1
 K
 Governor no. : 0 420 083 992

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 V

1st version kW : 129.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 16.50...19.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 12.80...12.90
 Del. quantity cm³/ : 10.3...10.5
 100 s : (10.1...10.7)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 275.0
 Rack travel in mm : 5.80...6.20
 Del. quantity cm³/ : 2.0...2.4
 100 s : (1.7...2.6)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330
 travel mm : 9.80...10.20
 2nd speed rpm : 950
 travel mm : 6.90...7.10
 3rd speed rpm : 550
 travel mm : 3.60...4.20
 4th speed rpm : 275
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000
 Del. quantity : 103.0...105.0
 1000 : (101.0...107.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 290...298

Testing:

1st rack travel in: 11.80
Speed rpm : 1320...1340
2nd rack travel in: 4.00
Speed rpm : 1460...1500
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 238...246
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.8

Testing:

Speed rpm : 200
Minimum rack travel: 6.60
Speed rpm : 275
Rack travel in mm : 5.80...6.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 11.90...12.00
3rd speed rpm : 1000
Rack travel in m: 12.30...12.50
4th speed rpm : 500
Rack travel in m: 11.50...11.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 11.20...11.60
2nd pressure hPa : 140
Rack travel in m: 11.70...11.90
3rd pressure hPa : 220
Rack travel in m: 12.30...12.50

A20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del. quantity cm³/ : 98.5...101.5
1000 s: (96.0...104.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 1250
Del. quantity cm³/ : 89.0...91.0
1000 s: (87.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 88.0...112.0
1000 s: (85.0...115.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.80...6.20
Del. quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 7
 Edition : 20.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 292
 Injection pump
 Pump designation : PES6MW100/720RS1131-1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RQV300...1300MW123
 Governor no. : 0 420 083 255

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 170.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 14.40...14.50
 Del.quantity cm³/ : 11.4...11.6
 100 s: (11.2...11.8)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.5
 Del.quantity cm³/ : 1.0...1.4
 100 s: (0.7...1.6)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.40...9.80
 2nd speed rpm : 1350
 travel mm : 8.40...8.60
 3rd speed rpm : 600
 travel mm : 3.90...4.50
 4th speed rpm : 300
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1000
Rack travel in m: 14.40...14.50

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 106.5...109.5
1000 s: (104.0...112.0)
Spread cm³ : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 K 1
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 293
 Injection pump
 Pump designation : PES6MM100/320RS1216
 EP type number : 0 413 406 206
 Governor
 Governor design. : RQV275...1250MM124K
 Governor no. : 0 420 083 989

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226 U

1st version kW : 110.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 11.50...14.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.20...6.60

Del.quantity cm³/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330
 travel mm : 9.80...10.20

2nd speed rpm : 925
 travel mm : 6.60...6.80

3rd speed rpm : 550
 travel mm : 3.60...4.20

4th speed rpm : 275
 travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 290...298

Testing:

1st rack travel in: 12.00
Speed rpm : 1320...1340
2nd rack travel in: 4.00
Speed rpm : 1460...1500
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 238...246
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.6

Testing:

Speed rpm : 200
Minimum rack travel: 7.00
Speed rpm : 275
Rack travel in mm : 6.20...6.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.00...13.10
2nd speed rpm : 700
Rack travel in m: 11.60...11.70
3rd speed rpm : 1000
Rack travel in m: 12.30...12.50
4th speed rpm : 500
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1320...1340

A24

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...112.0
1000 s: (85.0...115.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.20...6.60
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 Q
Edition : 21.08.91
Replaces : 05.91
Test oil : ISO-4113
Combination no. : 0 403 456 111
Injection pump
Pump designation : PES6MM100/321RS1186
EP type number : 0 413 406 168
Governor
Governor design. : RQ250/1200MM84-4
Governor no. : 0 420 082 044

Customer-spec. information
Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.70...14.80

Del.quantity cm3/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
travel mm : 9.50...9.90

2nd speed rpm : 1250
travel mm : 7.50...7.70

3rd speed rpm : 350
travel mm : 5.20...5.80

4th speed rpm : 250
travel mm : 2.20...2.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 1200

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 126.0...128.0

1000 : (124.0...130.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Setting point:
Speed rpm : 1200
Rack travel in mm : 15.5

Testing:
1st rack travel in: 13.70
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.70...14.80
2nd speed rpm : 600
Rack travel in m: 14.80...14.90
3rd speed rpm : 800
Rack travel in m: 14.80...14.90
4th speed rpm : 1200
Rack travel in m: 14.30...14.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.30...12.40
2nd pressure hPa : 400
Rack travel in m: 13.80...14.10

3rd pressure hPa : 1000
Rack travel in m: 14.80...14.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7008

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 A
Edition : 21.08.91
Replaces : 12.90
Test oil : ISO-4113
Combination no. : 0 403 456 112
Injection pump
Pump designation : PES6MW100/321RS1190
EP type number : 0 413 406 176
Governor
Governor design. : RQ250/1100MW84-5
Governor no. : 0 420 082 046

Customer-spec. information
Customer : MAN

Engine : D 0826 LOH05

1st version kW : 150.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 14.70...14.80

Del.quantity cm3/ : 13.2...13.4

100 s: (13.0...13.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
travel mm : 9.30...9.70

2nd speed rpm : 1100
travel mm : 7.30...7.50

3rd speed rpm : 470
travel mm : 6.70...7.30

4th speed rpm : 250
travel mm : 1.40...1.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: 107

Speed rpm : 600

Rack travel in mm : 16.00...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 132.0...134.0

1000 : (130.0...136.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Setting point:

Speed rpm : 600
Rack travel in mm : 16.9

Testing:

1st rack travel in: 13.70
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 250
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.10
2nd pressure hPa : 450
Rack travel in m: 13.70...14.00
3rd pressure hPa : 1000
Rack travel in m: 14.70...14.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 131.0...134.0
1000 s: (128.5...136.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7115
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D
 Edition : 08.10.91
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 115
 Injection pump
 Pump designation : PES6MM100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQ250/1200M84-7
 Governor no. : 0 420 082 055

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH 01

1st version kW : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 13.60...13.70
 Del.quantity cm³/ : 16.3...16.5
 100 s: (16.1...16.7)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 2.1...2.5
 100 s: (1.8...2.7)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
 travel mm : 9.30...9.70
 2nd speed rpm : 1255
 travel mm : 6.50...6.70
 3rd speed rpm : 360
 travel mm : 3.90...4.50
 4th speed rpm : 250
 travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1200
 Del.quantity : 163.0...165.0
 1000 : (161.0...167.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.60
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:
Speed rpm : 150
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.00...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.80
2nd pressure hPa : 700
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1200
Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm3/ : 167.0...170.0
1000 s: (164.5...172.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7126
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 1
Edition : 08.10.91
Replaces : 08.91
Test oil : ISO-4113
Combination no. : 0 403 456 116
Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205
Governor
Governor design. : RQ250/1200MW84-7
Governor no. : 0 420 082 055

Customer-spec. information
Customer : MAN

Engine : D 0826 LUH 04
1st version kW : 199.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4
Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 13.60...13.70
Del. quantity cm3/ : 16.3...16.5
100 s : (16.1...16.7)
Spread cm3 : 0.3
100 s : (0.6)

2nd speed rpm : 250.0
Rack travel in mm : 5.9...6.1
Del. quantity cm3/ : 2.1...2.5
100 s : (1.8...2.7)
Spread cm3 : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
travel mm : 9.30...9.70
2nd speed rpm : 1255
travel mm : 6.50...6.70
3rd speed rpm : 360
travel mm : 3.90...4.50
4th speed rpm : 250
travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: 108
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1200
Del. quantity : 163.0...165.0
1000 : (161.0...167.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.60
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:
Speed rpm : 150
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.00...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.80
2nd pressure hPa : 700
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1200
Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 167.0...170.0
1000 s: (164.5...172.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7137
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 N
 Edition : 18.09.91
 Replaces : 11.89
 Test oil : ISO-4113
 Combination no. : 0 403 466 121
 Injection pump
 Pump designation : PES6MM100/12ORS1184
 EP type number : 0 413 406 171
 Governor
 Governor design. : RSV375...1250MM2A334
 Governor no. : 0 420 085 122

Customer-spec. information
 Customer : CUMMINS

Engine : 6 BTAA 5.9

1st version kW : 157.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.80...10.90
 Del.quantity cm³/ : 12.5...12.7
 100 s : (12.3...12.9)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 6.5...7.0
 Del.quantity cm³/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 800
 Del.quantity : 125.0...127.0
 1000 : (123.0...129.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 102...110

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.80
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1470
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 5.50...6.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.30...9.40

Measurement

Speed 1/min : 500

1st pressure hPa : 490
Rack travel in m: 10.20...10.30
2nd pressure hPa : 550
Rack travel in m: 10.40...10.70
3rd pressure hPa : 800
Rack travel in m: 10.80...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)
Spread cm3 : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 73.0...83.0
1000 s: (70.0...86.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.50...7.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CUM #3280646

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 6,2 F
 Edition : 02.08.91
 Replaces : 06.91
 Test oil : ISO-4113
 Combination no. : 0 403 466 125
 Injection pump
 Pump designation : PES6MW100/320/3RS116
 2-1
 EP type number : 0 413 406 196
 Governor
 Governor design. : RSV325...900MW1A340
 Governor no. : 0 420 085 144

Customer-spec. information
 Customer : MWM

Engine : TD 226 B-6
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 10.40...10.50
 Del. quantity cm³/ : 11.6...11.8
 100 s: (11.4...12.0)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 6.3...6.5
 Del. quantity cm³/ : 0.8...1.2
 100 s: (0.5...1.4)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 116.5...118.5
 1000 : (114.5...120.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
 1st rack travel in: 9.40
 Speed rpm : 940...950
 2nd rack travel in: 4.00

Speed rpm : 980...1010
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1
Control Lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 325
Rack travel in mm : 6.30...6.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (97.0...123.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 8.0...12.0
1000 s: (5.5...14.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 T
 Edition : 30.08.91
 Replaces : 07.91
 Test oil : ISO-4113
 Combination no. : 0 403 466 126
 Injection pump
 Pump designation : PES6MW100/120RS1218
 EP type number : 0 413 406 208
 Governor
 Governor design. : RSV400...1050MW7A319
 -17
 Governor no. : 0 420 085 174

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 261.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.30...15.40

Del.quantity cm³/ : 20.7...20.9

100 s: (20.5...21.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 207.0...209.0

1000 : (205.0...211.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 14.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1125...1155
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: CUM #3919723

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 B
 Edition : 27.09.91
 Replaces : 06.91
 Test oil : ISO-4113

Combination no. : 0 403 474 008

Injection pump
 Pump designation : PES4Mw100/72ORS1181
 EP type number : 0 413 404 107
 Governor
 Governor design. : RSV400...1000Mw1A333
 Governor no. : 0 420 085 118

Customer-spec. information
 Customer : LIEBHERR

Engine : 914

1st version kW : 120.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 14.6...14.8

100 s: (14.4...15.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 146.0...148.0

1000 : (144.0...150.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1275
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.70...11.80
2nd speed rpm : 600
Rack travel in m: 11.70...11.80
5th speed rpm : 450
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 145.5...148.5
1000 s: (143.0...151.0)
Spread cm3 : 3.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 I 2
Edition : 18.09.91
Replaces : 07.91
Test oil : ISO-4113
Combination no. : 0 403 474 016
Injection pump
Pump designation : PES4MW100/72ORS1212
EP type number : 0 413 404 114
Governor
Governor design. : RSV350...1300MWOA346
Governor no. : 0 420 085 175

Customer-spec. information
Customer : MB-NFZ

Engine : OM364LA

1st version kW : 102.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
Rack travel in mm : 13.20...13.30
Del.quantity cm3/ : 10.1...10.3
100 s: (9.9...10.5)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.8
Del.quantity cm3/ : 1.0...1.4
100 s: (0.7...1.6)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.10...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h: 700
Del.quantity : 101.0...103.0
1000 : (99.0...105.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Setting point:
Speed rpm : 800
Rack travel in mm : 0.5

Testing:
1st rack travel in: 12.20

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1380...1393
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1500
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1360
Speed rpm : 12.20

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.90...11.10
2nd pressure hPa : 400
Rack travel in m: 12.60...12.80
3rd pressure hPa : 700
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...95.0
1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.80
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 H 7
 Edition : 20.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 019
 Injection pump
 Pump designation : PES4MW100/72ORS1151
 EP type number : 0 413 404 104
 Governor
 Governor design. : RSV350...1200MWA346
 -3
 Governor no. : 0 420 085 179
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM 364 A
 1st version kW : 77.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 8.8...9.0
 100 s : (8.6...9.2)

Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.8
 Del. quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h : 700
 Del. quantity : 88.0...90.0
 1000 : (86.0...92.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.50
Speed rpm : 1240...1245 *
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 10.50

LOW IDLE 1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.50...11.60
2nd speed rpm : 600
Rack travel in m: 12.50...12.60
3rd speed rpm : 1000
Rack travel in m: 11.90...12.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.40...10.50
2nd pressure hPa : 375
Rack travel in m: 11.50...11.80
3rd pressure hPa : 700
Rack travel in m: 12.50...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 83.5...86.5
1000 s: (81.0...89.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 75.0...85.0
1000 s: (72.0...88.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.80
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 45...53 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.
Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 I 4
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 474 020

Injection pump
 Pump designation : PES4MM100/72ORS1212
 EP type number : 0 413 404 114
 Governor
 Governor design. : RSV350...1200MWA346
 -4
 Governor no. : 0 420 083 252

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 364 LA

1st version kW : 99.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 100...108

Testing:

1st rack travel in: 12.50

Speed rpm : 1240...1245 *

2nd rack travel in: 4.00

Speed rpm : 1285...1298

3rd rack travel in: 4.00

Speed rpm : 1325...1355

4th rack travel in: 1450

Speed rpm : 0.30...1.70

5th rack travel in: 1240...1255
Speed rpm : 12.50

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.80...6.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.90...12.00
2nd pressure hPa : 375
Rack travel in m: 12.90...13.20
3rd pressure hPa : 700
Rack travel in m: 13.50...13.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 83.5...86.5
1000 s: (81.0...89.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 40.0...42.0
1000 s: (38.0...44.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 85.0...95.0
1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.80...7.00
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 45...53 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.
Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 8,4 D
Edition : 27.09.91
Replaces : 07.91
Test oil : ISO-4113

Combination no. : 0 403 476 081

Injection pump
Pump designation : PES6MW100/72ORS1196
EP type number : 0 413 406 184
Governor
Governor design. : RSV350...1050MWA338
Governor no. : 0 420 085 138

Customer-spec. information
Customer : LIEBHERR

Engine : D 916 T

1st version kW : 170.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.40...3.50
: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 13.3...13.5

100 s: (13.1...13.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.4

Del. quantity cm³/ : 2.7...3.1

100 s: (2.4...3.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 750

Del. quantity : 133.0...135.0

1000 : (131.0...137.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.10

Speed rpm : 1060...1075
2nd rack travel in: 4.00
Speed rpm : 1115...1145
3rd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.90
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
3rd speed rpm : 800
Rack travel in m: 11.10...11.20
5th speed rpm : 400
Rack travel in m: 12.60...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : -
Rack travel mm : 10.40...10.60

Measurement

Speed 1/min : 550

1st pressure hPa : 350
Rack travel in m: 10.80...11.00
2nd pressure hPa : 750
Rack travel in m: 11.10...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 500
Del.quantity cm³/ : 132.5...135.5
1000 s: (130.0...138.0)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 750
Speed rpm : 800
Del.quantity cm³/ : 133.5...136.5
1000 s: (131.0...139.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 120.0...122.0
1000 s: (118.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1060...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 27.0...31.0
1000 s: (24.5...33.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 x
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 083 459

Injection pump
 Pump designation : PES6A95D120RS2822
 EP type number : 9 400 084 029
 Governor
 Governor design. : RQV350...1250AB1235-
 2R
 Governor no. : 9 420 080 311

Customer-spec. information
 Customer : CUMMINS

Engine : 6 BT

1st version kW : 119.3
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.0...5.2
 Del.quantity cm³/ : 0.6...1.0
 100 s: (0.4...1.2)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300
 travel mm : 6.80...6.90
 2nd speed rpm : 350
 travel mm : 1.20...1.70
 3rd speed rpm : 700
 travel mm : 4.00...4.50
 4th speed rpm : 1550
 travel mm : 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1530
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 600
 Del.quantity : 85.5...87.5
 1000 : (83.5...89.5)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 11.70
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION
Speed rpm : 475...625

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 600
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.80
2nd pressure hPa : 320
Rack travel in m: 12.00...12.10
3rd pressure hPa : 410
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 600
Speed rpm : 700
Del.quantity cm3/ : 80.0...83.0
1000 s: (77.5...85.5)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 64.0...67.0
1000 s: (62.0...69.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.0
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 6.0...10.0
1000 s: (4.0...12.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Spread cm³ : 2.00
1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 10.10
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 7.90...8.10

CONSTANT REGULATION
Speed rpm : 370...530

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 12.10...12.20
3rd speed rpm : 800
Rack travel in m: 11.90...12.20
4th speed rpm : 1100
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 300 (320)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (71.5...78.5)
Speed rpm : 800
Del.quantity cm³/ : 77.5...79.5
1000 s: (75.0...82.0)
Speed rpm : 1100
Del.quantity cm³/ : 77.0...79.0
1000 s: (74.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 h
 Edition : 18.09.91
 Replaces : 9.4.91
 Test oil : ISO-4113
 Combination no. : 9 400 085 307
 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1300AB1228-
 1L
 Governor no. : 9 420 080 268

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364 A

1st version kW : 85.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 006
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 9.0...9.2
 100 s: (8.8...9.4)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.6...1.2

100 s: (0.4...1.4)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30
 2nd speed rpm : 500
 travel mm : 2.30...2.80
 3rd speed rpm : 750
 travel mm : 4.10...4.30
 4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1500
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 90.0...92.0
 1000 : (88.0...94.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 9.60
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 420...550

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.60...10.70
2nd speed rpm : 800
Rack travel in m: 11.00...11.10
4th speed rpm : 1000
Rack travel in m: 10.80...11.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 410
Rack travel in m: 10.70...10.80
3rd pressure hPa : 310
Rack travel in m: 10.00...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm3/ : 84.5...87.5
1000 s: (82.0...90.0)
Aneroid pressure h: 700
Speed rpm : 1000
Del.quantity cm3/ : 87.5...90.5
1000 s: (85.0...93.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 61.0...63.0
1000 s: (59.0...65.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 12.90...13.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 2
 Edition : 18.09.91
 Replaces : 16.1.91
 Test oil : ISO-4113

Combination no. : 9 400 085 310

Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-
 8L
 Governor no. : 9 420 080 279

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.08)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 9.8...10.0
 100 s: (9.6...10.2)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.8...1.4
 100 s: (0.6...1.6)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1500
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 98.0...100.0
 1000 : (96.0...102.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 10.10
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 420...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.70
2nd pressure hPa : 450
Rack travel in m: 10.40...10.50
3rd pressure hPa : 300
Rack travel in m: 9.70...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)

Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 59.5...61.5
1000 s: (57.5...63.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 13.60...13.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 g 6
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 085 317

Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-9L
 Governor no. : 9 420 080 282

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 8.9...9.1
 100 s: (8.7...9.3)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.8...1.4
 100 s: (0.6...1.6)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1500
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 89.0...91.0
 1000 : (87.0...93.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 9.40
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 420...550

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.90...11.00
4th speed rpm : 1000
Rack travel in m: 10.60...10.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.90...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.30
2nd pressure hPa : 460
Rack travel in m: 10.10...10.20
3rd pressure hPa : 300
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Aneroid pressure h: 700
Speed rpm : 1000
Del.quantity cm³/ : 88.0...91.0
1000 s: (85.5...93.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 13.60...13.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 v
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 334
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1218-
 2R
 Governor no. : 9 420 080 304

Customer-spec. information
 Customer : CUMMINS
 Engine : 6 CTA - 8.3 L
 1st version kW : 179.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

| | | |
|---------------------------------|-----------------|-----------------|
| 1st speed | rpm | : 1100 |
| <hr/> | | |
| Rack travel in mm | | : 13.60...13.70 |
| <hr/> | | |
| Del. quantity cm ³ / | | : 12.7...12.9 |
| | 100 s: | (12.5...13.1) |
| <hr/> | | |
| Spread | cm ³ | : 0.3 |
| | 100 s: | (0.6) |
| <hr/> | | |
| 2nd speed | rpm | : 350.0 |
| Rack travel in mm | | : 5.9...6.1 |
| Del. quantity cm ³ / | | : 1.3...1.7 |
| | 100 s: | (1.0...1.9) |
| Spread | cm ³ | : 0.3 |
| | 100 s: | (0.5) |

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

| | | |
|-----------|-----|---------------|
| 1st speed | rpm | : 1100 |
| travel mm | | : 8.40...8.50 |
| 2nd speed | rpm | : 350 |
| travel mm | | : 2.20...2.60 |
| 3rd speed | rpm | : 500 |
| travel mm | | : 3.90...4.20 |
| 4th speed | rpm | : 800 |
| travel mm | | : 5.60...5.90 |

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del. quantity : 127.5...129.5
1000 : (125.5...131.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:

1st rack travel in: 12.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.60...13.70
2nd speed rpm : 800
Rack travel in m: 14.40...14.50
3rd speed rpm : 900
Rack travel in m: 14.10...14.30
4th speed rpm : 1000
Rack travel in m: 13.80...14.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 500

CO₄

1st pressure hPa : -
Rack travel in m: 11.30...11.50
2nd pressure hPa : 440
Rack travel in m: 12.00...12.20
3rd pressure hPa : 640
Rack travel in m: 13.70...14.00

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del. quantity cm³/ : 139.5...142.5
1000 s: (137.0...145.0)
Aneroid pressure h: 900
Speed rpm : 900
Del. quantity cm³/ : 136.0...139.0
1000 s: (133.5...141.5)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 81.0...83.0
1000 s: (79.0...85.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 165.0...179.0
1000 s: (161.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3352552
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i 1
 Edition : 02.08.91
 Replaces : 16.1.91
 Test oil : ISO-4113

Combination no. : 9 400 087 417

Injection pump
 Pump designation : PES6P120A720RS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923K
 Governor no. : 9 420 080 272

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 141.7
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.10...13.20

Del. quantity cm³/ : 15.6...15.8

100 s: (15.3...16.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.50...9.70

2nd speed rpm : 1000
 travel mm : 7.80...8.00

3rd speed rpm : 800
 travel mm : 6.40...6.80

4th speed rpm : 450
 travel mm : 3.80...4.00

5th speed rpm : 350
 travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del. quantity : 156.5...158.5
 1000 : (153.5...161.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 12.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1420
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.10...13.20
2nd speed rpm : 750
Rack travel in m: 11.40...11.50
3rd speed rpm : 550
Rack travel in m: 10.30...10.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 200
Rack travel in m: 9.30...9.40
3rd pressure hPa : 440
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 153.0...159.0
1000 s: (150.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.0...120.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (145.0...195.0)
Rack travel in mm : 11.40...12.20

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 ; 3
 Edition : 02.08.91
 Replaces : 16.1.91
 Test oil : ISO-4113

Combination no. : 9 400 087 418

Injection pump
 Pump designation : PES6P120A720RS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923-1
 K
 Governor no. : 9 420 080 273

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 179.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 2.6...3.2
 100 s: (2.4...3.4)
 Spread cm³ : 0.5
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.50...9.70
 2nd speed rpm : 1000
 travel mm : 7.80...8.00
 3rd speed rpm : 800
 travel mm : 6.40...6.80
 4th speed rpm : 450
 travel mm : 3.80...4.00
 5th speed rpm : 350
 travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del.quantity : 165.0...167.0
 1000 : (162.0...170.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 12.60
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1335...1365
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:
Speed rpm : 275
Minimum rack trave: 6.90
Speed rpm : 350
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.60...13.70
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 550
Rack travel in m: 11.00...11.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 365
Rack travel in m: 9.60...9.70
3rd pressure hPa : 635
Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 165.0...171.0
1000 s: (162.0...174.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 104.5...108.5
1000 s: (102.5...110.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (126.0...174.0)
Rack travel in mm : 10.60...11.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i
 Edition : 02.08.91
 Replaces : 16.1.91
 Test oil : ISO-4113

Combination no. : 9 400 087 419

Injection pump
 Pump designation : PES6P120A72ORS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RQV350...1150PA923-2
 K
 Governor no. : 9 420 080 274

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kw : 156.6
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.35...2.45
 : (2.30...2.50)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 15.8...16.0
 100 s: (15.5...16.3)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 2.6...3.2
 100 s: (2.4...3.4)

Spread cm³ : 0.5
 100 s: (0.8)

**(B) Setting of injection pump
 with governor**

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
 travel mm : 9.50...9.70

2nd speed rpm : 1000
 travel mm : 7.80...8.00

3rd speed rpm : 800
 travel mm : 6.40...6.80

4th speed rpm : 450
 travel mm : 3.80...4.00

5th speed rpm : 350
 travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 900
 Del.quantity : 158.5...160.5
 1000 : (155.5...163.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.50
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1335...1365
4th rack travel in: 1420
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.50...13.60
2nd speed rpm : 750
Rack travel in m: 12.40...12.60
3rd speed rpm : 550
Rack travel in m: 11.30...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 300
Rack travel in m: 10.10...10.20
3rd pressure hPa : 500
Rack travel in m: 12.20...12.60

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 163.0...169.0
1000 s: (160.0...172.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 106.5...110.5
1000 s: (104.5...112.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (146.0...194.0)
Rack travel in mm : 11.60...12.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 i 2
 Edition : 02.08.91
 Replaces : 16.1.91
 Test oil : ISO-4113

Combination no. : 9 400 087 420

Injection pump
 Pump designation : PES6P120A72DRS3234
 EP type number : 9 400 087 068
 Governor
 Governor design. : RGV350...1150PA923-3
 K
 Governor no. : 9 420 080 275

Customer-spec. information
 Customer : FORD (FNH)

Engine : 7.8 Ltr

1st version kW : 167.8
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 70...80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.35...2.45
 : (2.30...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.50...9.70

2nd speed rpm : 1000

travel mm : 7.80...8.00

3rd speed rpm : 800

travel mm : 6.40...6.80

4th speed rpm : 450

travel mm : 3.80...4.00

5th speed rpm : 350

travel mm : 2.20...2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del.quantity : 167.5...169.5

1000 : (164.5...172.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 13.10
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 275
Minimum rack travel: 6.90
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.10...14.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80
3rd speed rpm : 550
Rack travel in m: 11.50...11.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 375
Rack travel in m: 9.70...9.80
3rd pressure hPa : 630
Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del. quantity cm³/ : 170.0...176.0
1000 s: (167.0...179.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...190.0
1000 s: (148.0...192.0)
Rack travel in mm : 11.50...12.30

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 n
 Edition : 02.08.91
 Replaces : 16.1.91
 Test oil : ISO-4113
 Combination no. : 9 400 087 421
 Injection pump
 Pump designation : PES6P100A72ORS3235
 EP type number : 9 400 087 067
 Governor
 Governor design. : RQV350...1300PA923-4
 K
 Governor no. : 9 420 080 276

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 Ltr

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19
 Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 14.4...14.6

100 s: (14.1...14.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300
travel mm : 8.90...9.10

2nd speed rpm : 700
travel mm : 5.50...5.70

3rd speed rpm : 450
travel mm : 3.50...3.80

4th speed rpm : 350
travel mm : 2.20...2.40

5th speed rpm : 275
travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1200
 Del. quantity : 144.0...146.0
 1000 : (141.0...149.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 12.90
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1540
4th rack travel in: 1630
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:
Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.90...14.00
2nd speed rpm : 850
Rack travel in m: 11.90...12.10
3rd speed rpm : 550
Rack travel in m: 10.30...10.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 375
Rack travel in m: 10.00...10.10
3rd pressure hPa : 715
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 850
Del.quantity cm³/ : 132.0...138.0
1000 s: (129.0...141.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.0...90.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (138.0...182.0)
Rack travel in mm : 12.10...12.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 3
 Edition : 18.09.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 087 429

Injection pump
 Pump designation : PES6P120A720RS3256-1
 EP type number : 9 400 087 077
 Governor
 Governor design. : RQV300...1300PA963
 Governor no. : 9 420 080 283

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 156.6
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + -.° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 5.70...6.30

Del. quantity cm³/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 300.0
 Rack travel in mm : 8.6...8.9
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.70
 2nd speed rpm : 650
 travel mm : 3.80...4.30
 3rd speed rpm : 1060
 travel mm : 5.60...6.10
 4th speed rpm : 1358
 travel mm : 8.20...8.70
 5th speed rpm : 1461
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm³ : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 11.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 86...94

Testing:

Speed rpm : 200
Minimum rack travel: 10.20
Speed rpm : 300
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.90
2nd pressure hPa : 300
Rack travel in m: 11.10...11.30
3rd pressure hPa : 500
Rack travel in m: 12.10...12.30

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 145.0...149.0
1000 s: (142.0...152.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (96.0...124.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 4
 Edition : 18.09.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 087 430

Injection pump
 Pump designation : PES6P120A720RS3256-1
 EP type number : 9 400 087 077
 Governor
 Governor design. : RQV300...1300PA963-1
 Governor no. : 9 420 080 284

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 171.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 5.70...6.30

Del. quantity cm³/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.70

2nd speed rpm : 650
 travel mm : 3.80...4.30

3rd speed rpm : 1060
 travel mm : 5.60...6.10

4th speed rpm : 1358
 travel mm : 8.20...8.70

5th speed rpm : 1461
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm³ : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 86...94

Testing:
Speed rpm : 200
Minimum rack trave: 10.20
Speed rpm : 300
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.90
2nd pressure hPa : 300
Rack travel in m: 11.10...11.30
3rd pressure hPa : 700
Rack travel in m: 13.00...13.20

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 180.0...182.0
1000 s: (177.0...185.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 167.0...171.0
1000 s: (164.0...174.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (96.0...124.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 2
 Edition : 18.09.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 087 431

Injection pump
 Pump designation : PES6P120A720RS3256
 EP type number : 9 400 087 071
 Governor
 Governor design. : RGV300...1300PA963-2
 Governor no. : 9 420 080 285

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 141.7
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 5.70...6.30

Del. quantity cm³/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.70

2nd speed rpm : 650
 travel mm : 3.80...4.30

3rd speed rpm : 1060
 travel mm : 5.60...6.10

4th speed rpm : 1358
 travel mm : 8.20...8.70

5th speed rpm : 1461
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm3 : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 10.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 86...94

Testing:
Speed rpm : 200
Minimum rack trave: 10.20
Speed rpm : 300
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.60...11.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.90
2nd pressure hPa : 250
Rack travel in m: 10.80...11.00
3rd pressure hPa : 360
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 117.0...121.0
1000 s: (114.0...124.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (86.0...114.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 h1
Edition : 18.09.91
Replaces : 2.8.91
Test oil : ISO-4113
Combination no. : 9 400 087 434
Injection pump
Pump designation : PE6P120A320RS3178
EP type number : 0 411 826 752
Governor
Governor design. : RQV250...1025PA921-2
Governor no. : 0 421 813 785

Customer-spec. information
Customer : VOLVO

Engine : TD 122 FS
1st version kW : 287.0
Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 010
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 019
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter x wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
(3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 14.00...14.10
Del. quantity cm3/ : 25.3...25.5
100 s: (25.0...25.8)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 4.8...5.1
Del. quantity cm3/ : 1.7...2.2
100 s: (1.5...2.5)
Spread cm3 : 0.5
100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.10...1.30
2nd speed rpm : 500
travel mm : 4.10...4.90
3rd speed rpm : 700
travel mm : 6.30...6.70
4th speed rpm : 900
travel mm : 6.30...6.70
5th speed rpm : 1025
travel mm : 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1130
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 1200

Del. quantity : 253.0...255.0
1000 : (250.0...258.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.00
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION
Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 90
Rack travel in m: 10.50...10.60
3rd pressure hPa : 760
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del. quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with RO80
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 5
 Edition : 18.09.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 087 450

Injection pump
 Pump designation : PES6P120A72ORS3256
 EP type number : 9 400 087 071
 Governor
 Governor design. : RQV300...1300PA978
 Governor no. : 9 420 080 296

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 126.8
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 5.70...6.30

Del. quantity cm³/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.70

2nd speed rpm : 650
 travel mm : 3.80...4.30

3rd speed rpm : 1060
 travel mm : 5.60...6.10

4th speed rpm : 1358
 travel mm : 8.20...8.70

5th speed rpm : 1461
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm³ : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.80
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 86...94

Testing:
Speed rpm : 200
Minimum rack travel: 10.20
Speed rpm : 300
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.80...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.70
2nd pressure hPa : 250
Rack travel in m: 10.60...10.80
3rd pressure hPa : 360
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 121.0...125.0
1000 s: (118.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 61.0...63.0
1000 s: (58.0...66.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (86.0...114.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 n 2
 Edition : 18.09.91
 Replaces : 16.1.91
 Test oil : ISO-4113
 Combination no. : 9 400 087 452
 Injection pump
 Pump designation : PES6P100A720RS3235
 EP type number : 9 400 087 067
 Governor
 Governor design. : RQV350...1275PA923-6
 K
 Governor no. : 9 420 080 301

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6.6 L

1st version kW : 123.0
 Rated speed : 2550

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 072

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 85...95

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1275
 Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 14.3...14.5
 100 s: (14.0...14.8)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.2...2.2)
 Spread cm³ : 0.5
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300
 travel mm : 8.90...9.10
 2nd speed rpm : 700
 travel mm : 5.50...5.70
 3rd speed rpm : 450
 travel mm : 3.50...3.80
 4th speed rpm : 350
 travel mm : 2.20...2.40
 5th speed rpm : 275
 travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1275
 Aneroid pressure h: 1200
 Del.quantity : 143.0...145.0
 1000 : (140.0...148.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 12.80
Speed rpm : 1335...1345
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1630
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION
Speed rpm : 390...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1275
Rack travel in m: 13.80...13.90
2nd speed rpm : 850
Rack travel in m: 11.90...12.10
3rd speed rpm : 550
Rack travel in m: 10.30...10.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1275
Pressure hPa : 1200
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 1275

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 375
Rack travel in m: 10.00...10.10
3rd pressure hPa : 715
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 850
Del.quantity cm³/ : 132.0...138.0
1000 s: (129.0...141.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.0...90.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1335...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (138.0...182.0)
Rack travel in mm : 12.10...12.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 f 2
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 459

Injection pump
 Pump designation : PES6P120A720LS7181
 EP type number : 0 412 726 824
 Governor
 Governor design. : RQ300/1050PA911-2
 Governor no. : 9 420 080 313

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 298.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.30...15.50

Del. quantity cm³/ : 27.9...28.1

100 s: (27.6...28.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del. quantity : 279.0...281.0

1000 : (276.0...284.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.90...15.10
2nd speed rpm : 700
Rack travel in m: 16.10...16.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 15.30...15.50

Measurement

Speed 1/min : 600

1st pressure hPa : 360
Rack travel in m: 10.70...10.90
2nd pressure hPa : 740
Rack travel in m: 13.90...14.10
3rd pressure hPa : 1340
Rack travel in m: 15.50...15.70
4th pressure hPa : 1440
Rack travel in m: 15.80...1.90
5th pressure hPa : -
Rack travel in m: 9.20...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del.quantity cm3/ : 263.0...266.0
1000 s: (260.0...269.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm3/ : 297.0...300.0
1000 s: (294.0...303.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 7
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 460
 Injection pump
 Pump designation : PES6P120A720LS7114-3
 EP type number : 0 412 726 820
 Governor
 Governor design. : RQ300/1050PA911-3
 Governor no. : 9 420 080 314

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kw : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.10...13.30
2nd speed rpm : 800
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 240
Rack travel in m: 10.50...
2nd pressure hPa : 560
Rack travel in m: 12.50...12.70
3rd pressure hPa : 920
Rack travel in m: 13.60...13.70
4th pressure hPa : 980
Rack travel in m: 13.80...13.90
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 237.5...240.5
1000 s: (234.5...243.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 r 3
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 461
 Injection pump
 Pump designation : PES5P120A720LS7174
 EP type number : 0 412 725 806
 Governor
 Governor design. : RQ300/1050PA774-6
 Governor no. : 9 420 080 315

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 19.3...19.5

100 s: (19.0...19.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...7.0

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 193.5...195.5

1000 : (190.5...198.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.60...11.80
2nd pressure hPa : 520
Rack travel in m: 13.00...13.20
3rd pressure hPa : 960
Rack travel in m: 14.10...14.20
4th pressure hPa : 1040
Rack travel in m: 14.30...14.40
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm3/ : 208.5...211.5
1000 s: (205.5...214.5)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm3/ : 209.0...213.0
1000 s: (206.0...216.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 197.0...217.0
1000 s: (193.0...221.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 v 2
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 462
 Injection pump
 Pump designation : PES5P120A720LS7175
 EP type number : 0 412 725 807
 Governor
 Governor design. : RQ300/1050PA774-7
 Governor no. : 9 420 080 316

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 LA

1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.9

Del.quantity cm³/ : 1.1...1.7

100 s: (0.8...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 850

Del.quantity : 233.5...235.5

1000 : (230.5...238.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.70...13.90
2nd speed rpm : 750
Rack travel in m: 14.50...14.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 850
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600
1st pressure hPa : 340
Rack travel in m: 10.30...10.50
2nd pressure hPa : 600
Rack travel in m: 12.40...12.60
3rd pressure hPa : 1160
Rack travel in m: 13.80...13.90
4th pressure hPa : 1240
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 9.30...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 231.0...234.0
1000 s: (228.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 251.0...255.0
1000 s: (248.0...258.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 222.0...242.0
1000 s: (218.0...246.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u 2
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 463
 Injection pump
 Pump designation : PES6P120A32ORS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...1100PA973-1
 Governor no. : 9 420 080 317

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA - 8.3 L

1st version kW : 186.4
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.40...10.50
 Del. quantity cm³/ : 17.1...17.3
 100 s : (16.8...17.6)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 0.5...1.1
 100 s : (0.3...1.3)
 Spread cm³ : 0.5
 100 s : (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150
 travel mm : 7.00...7.10
 2nd speed rpm : 350
 travel mm : 1.40...1.80
 3rd speed rpm : 650
 travel mm : 4.30...4.70
 4th speed rpm : 1400
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1325
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del. quantity : 171.0...173.0
 1000 : (168.0...176.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 105...113

Testing:

1st rack travel in: 9.40
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 490
Rack travel in m: 9.40...9.50
3rd pressure hPa : 660
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700

Del.quantity cm³/ : 166.0...170.0
1000 s: (162.5...173.5)
Spread cm³ : 6.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 118.0...121.0
1000 s: (116.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...250.0
1000 s: (216.0...254.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 5.0...11.0
1000 s: (3.0...13.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

:
Start-of-delivery mark is 8° after
start of delivery with control-rod
travel = 10.5 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h 6
 Edition : 16.10.91
 Replaces : 7.86
 Test oil : ISO-4113
 Combination no. : 9 400 230 070
 Injection pump
 Pump designation : PES6A100D410RS2676-1
 Governor
 Governor design. : RSV400...950A1B2186-2L

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466-T

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 010
 Inlet press., bar : 1.5
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter x Wall thickness x Length mm : 6,00x2,00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.45...2.55
 : (2.40...2.60)
 Rack travel in mm : 10.5

Phasing : 1-5-3-6-2-4

D10

Tolerance + - ° : 0-60-120-180-240-300
 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950
 Rack travel in mm : 10.20
 Del. quantity cm³/ : 9.4...9.6
 100 s : (-)
 Spread cm³ : 0.35
 100 s : (0.60)
 2nd speed rpm : 400
 Rack travel in mm : 6.50
 Del. quantity cm³/ : 1.8...2.2
 100 s : (-)
 Spread cm³ : 0.35
 100 s : (0.55)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Del. quantity : 94.0...96.0
 1000 : (92.0...98.0)

RATED SPEED

1st version
 Control lever
 position degrees: 47...55

Testing:
 1st rack travel in: 9.20
 Speed rpm : 995...1005
 2nd rack travel in: 4.00
 Speed rpm : 1050...1080
 4th rack travel in: 1150
 Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
 position degrees: 21...29
 Setting point w/out bumper spring

Speed rpm : 400
Rack travel in mm : 6.00
Speed rpm : 400
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 555...615

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 950
Rack travel in m: 10.20
2nd speed rpm : 650
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 112.0...115.0
1000 s: (109.5...117.5)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2,5 R2
Edition : 07.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900R294-2
Type number : 0 460 414 081
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.27.2510/210

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.10...1.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 46.50...47.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
1000S.: 20.00...21.00
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2200
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 17.50...23.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...80.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1750
Charge press hPa: 1000

Inj.-qty. cm3/
 difference 1000S.: 16.5...24.5
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1750
 Charge press hPa: 1000
 TD-travel
 difference mm: 0.3...0.5
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1750
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.1...0.3
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1750
 Charge press hPa: 1000
 TD travel mm: 5.00...5.80
 mm: (4.70...6.10)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 1.10...1.50
 mm: (0.60...2.00)

Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 1500
 Charge press. hPa: 1000
 TD travel mm: 3.60...4.40
 mm: (3.30...4.70)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 550
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.10...4.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.80...6.40
 Shutoff
 electromagnet Volt: 12

3rd speed 1/min: 1750
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.70...8.30
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (26.70...98.40)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 450
 LDA-stroke mm: 2.8
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 37.50...38.50
 1000S.: (34.00...42.00)

2nd speed 1/min: 2350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)

5th speed 1/min: 2200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 17.50...23.50
 1000S.: (16.00...25.00)

8th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 35.50...43.50
 1000S.: (33.50...45.50)

9th speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 44.00...49.00
 1000S.: (43.00...50.00)

10th speed 1/min: 1750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 46.50...47.50
 1000S.: (43.50...50.50)
 11th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 44.50...49.50
 1000S.: (43.00...51.00)
 12th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 44.00...49.00
 1000S.: (42.50...50.50)
 18th speed 1/min: 550
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...21.00
 1000S.: (17.00...24.00)
 20th speed 1/min: 550
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...43.00
 1000S.: (36.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (11.00...19.00)

Dispersion cm³/: 6.0
 1000S.: (6.5)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

3rd speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...47.00
 1000S.: (36.00...48.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

4th speed 1/min: 1750
 Charge press. hPa: 1000

Inj.-qty. cm³/: 16.50...24.50
 difference 1000S.: (16.50...24.50)
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1750
 Charge press. hPa: 1000
 TD-travel : 0.30...0.50
 difference mm: (0.30...0.50)
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1750
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 42.00...78.00
 1000S.: (42.00...78.00)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...48.00
 1000S.: (12.00...48.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...80.00
 1000S.: (40.00...80.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: KOT
 MS mm: 0.6...1.0
 SVS max. mm: 2.5
 LDA stroke mm: 2.8
 XK mm: 20.0...22.0
 XL mm: 12.6...16.0

Remarks:

:
 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 4,2 A
Edition : 13.09.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2250R413
Type number : 0 460 414 082
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T 4.20 (V)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,2
mm: +0,02(0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 800

Setting value mm: 4.00...4.40
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 800
Setting value bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 66.50...67.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 29.50...30.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 9.00...11.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.50...25.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...100.00
mind 1000S.: 70.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 800
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1500
Charge press hPa: 800
TD travel mm: 4.00...4.40
mm: (3.60...4.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 1.90...2.70
mm: (1.60...3.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1.50...3.50
mm: (1.30...3.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
9th speed 1/min: 500
Charge press. hPa: 800
TD travel mm: 2.10...2.30
mm: (1.40...3.00)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 800
Supply-pump
pressure bar: 6.00...6.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump
pressure bar: 7.30...7.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump
pressure bar: 8.30...8.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 800
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 62.55...104.25
quantity cm³/10s: (47.55...119.25)

2nd speed 1/min: 2250
Charge press. hPa: 800
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 69.50...152.90
quantity cm³/10s: (54.50...167.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6,5

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 58.50...59.50
1000S.: (55.50...62.50)

3rd speed 1/min: 2600
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...10.00
 1000S.: (0.00...10.00)
 5th speed 1/min: 2500
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.50...25.50
 1000S.: (20.50...28.50)
 9th speed 1/min: 2250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...74.00
 1000S.: (69.00...75.00)
 12th speed 1/min: 1250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 66.50...67.50
 1000S.: (64.50...69.50)
 15th speed 1/min: 1000
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 69.50...72.50
 1000S.: (67.50...74.50)
 18th speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.50...30.50
 1000S.: (27.00...33.00)
 20th speed 1/min: 625
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...32.50
 1000S.: (26.00...34.00)

D17

Mech. shutoff:
 Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12
 Idle delivery:
 1st speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 9.00...11.00
 1000S.: (6.00...14.00)
 Dispersion cm³/: 3.0
 1000S.: (4.0)
 2nd speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)
 Automatic starting fuel delivery:
 2nd speed 1/min: 350
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...40.00
 1000S.: (20.00...40.00)
 4th speed 1/min: 100
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...100.00
 1000S.: (70.00...100.00)
 Shutoff electromagnet:
 Cut-in
 min voltage : 10.0
 Rated voltage : 12.0
 Mounting and assembly dimensions:
 Designation
 K mm: 3.2...3.3
 KF mm: K-OT
 MS mm: 0.6...1.0
 SVS max. mm: -
 LDA stroke mm: 6.5

XK
XL

mm: 20.0...22.0
mm: 10.7...14.1

Remarks:

⋮



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 5,0 B2
 Edition : 07.10.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/11F1500R266-3
 Type number : 0 460 414 090
 Customer Part-No. :

Customer-specific information
 Customer : PERKINS

Engine : 500 GR DI.T/C
 Power KW: 42

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: 0,5
 (from BDC): +0,02(0,04)

Start of delivery block
 Piston stroke mm: 1,24
 mm: +0,02(0,06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
 Setting value mm: 2.40...2.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
 Setting value bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 29.00...30.00

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 3.5
 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 11.00...15.00

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 3.0
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1600
 Del. quantity cm³/
 1000S.: 12.00...18.00

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 70.00...110.00
 mind 1000S.: 70.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
 TD travel mm: 3.70...4.50
 mm: (3.40...4.80)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100

TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1350
TD travel mm: 3.40...4.20
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 1650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...18.00
1000S.: (9.00...21.00)

9th speed 1/min: 1500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.50...63.50
1000S.: (59.00...65.00)

10th speed 1/min: 1100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.50...62.50
1000S.: (57.50...64.50)

12th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.00...30.00
1000S.: (27.00...32.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (9.00...17.00)

Dispersion cm³/: 3.0
1000S.: (3.0)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 3.00...9.00
1000S.: (1.50...10.50)
3rd speed 1/min: 460
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.00...40.00
1000S.: (24.00...40.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...110.00
1000S.: (70.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: KOT
MS mm: 0,7...1.1

Remarks:

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 4.1 H3
Edition : 16.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/11F1625L218-5
Type number : 0 460 416 055
Customer Part-No. :

Customer-specific information
Customer : VOLVO-PENTA

Engine : TAMD 41

Power KW: 125

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 3.90...4.30

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000
Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 80.00...81.00
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 63.50...64.50

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 15.50...19.50
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1900
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 29.50...35.50

Start:

Speed 1/min: 100
Del. quantity cm3/: 85.00...125.00
mind 1000S.: 85.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1200
Charge press hPa: 1000
TD travel mm: 3.90...4.30
mm: (3.40...4.80)

4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

5th speed 1/min: 1400
Charge press. hPa: 1000
TD travel mm: 4.50...5.30
mm: (4.20...5.60)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.70...5.30
 bar: (4.50...5.50)
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70
 bar: (5.90...6.90)
 3rd speed 1/min: 1625
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.30...7.90
 bar: (7.10...8.10)

Overflow quantity at overflow valve:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Overflow quantity cm3/10s: 41.70...83.40
 quantity cm3/10s: (26.70...98.40)
 2nd speed 1/min: 1625
 Charge press. hPa: 1000
 Overflow quantity cm3/10s: 55.60...138.00
 quantity cm3/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
 Charge-air pressure-setting point hPa: 260
 LDA-stroke mm: 7.5
 Del. quantity cm3/1000s.: 71.50...72.50
 quantity cm3/1000s.: (69.00...75.00)
 5th speed 1/min: 1900
 Charge press. hPa: 1000
 Del. quantity cm3/1000s.: 29.50...35.50
 quantity cm3/1000s.: (28.50...36.50)
 9th speed 1/min: 1625
 Charge press. hPa: 1000
 Del. quantity cm3/1000s.: 76.00...79.00
 quantity cm3/1000s.: (73.50...81.50)
 12th speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm3/1000s.: 80.00...81.00
 quantity cm3/1000s.: (78.20...82.80)
 18th speed 1/min: 600
 Charge press. hPa: -
 Del. quantity cm3/1000s.: 63.50...64.50
 quantity cm3/1000s.: (61.00...67.00)
 20th speed 1/min: 800
 Charge press. hPa: 1000
 Del. quantity cm3/1000s.: 84.00...87.00
 quantity cm3/1000s.: (82.50...88.50)

Mech. shutoff:
 Mech. Abst.:

1st speed 1/min: 1625
 Charge press. hPa: -
 Del. quantity cm3/1000s.: 0.00...3.00
 quantity cm3/1000s.: (0.00...3.00)

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm3/1000s.: 0.00...3.00
 quantity cm3/1000s.: (0.00...3.00)
 Shutoff electromagnet volt: 24

Idle delivery:

1st speed 1/min: 350
 Del. quantity cm3/1000s.: 15.50...19.50
 quantity cm3/1000s.: (12.50...22.50)
 Dispersion cm3/1000s.: 3.5
 quantity cm3/1000s.: (3.5)
 2nd speed 1/min: 450
 Del. quantity cm3/1000s.: 0.00...3.00
 quantity cm3/1000s.: (0.00...3.00)
 3rd speed 1/min: 400
 Del. quantity cm3/1000s.: 3.00...9.00
 quantity cm3/1000s.: (1.50...10.50)

Automatic starting fuel delivery:

1st speed 1/min: 300
 Del. quantity cm3/1000s.: 85.00...125.00
 quantity cm3/1000s.: (85.00...125.00)
 2nd speed 1/min: 500
 Del. quantity cm3/1000s.: 50.00...80.00
 quantity cm3/1000s.: (50.00...80.00)
 4th speed 1/min: 100
 Del. quantity cm3/1000s.: 85.00...125.00
 quantity cm3/1000s.: (85.00...125.00)

Shutoff electromagnet:

Cut-in min voltage : 22.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: KOT
 MS mm: 1.1...1.5
 SVS max. mm: 3.9
 LDA stroke mm: 7.5

Remarks:
 :
 :

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7,2 P
Edition : 23.07.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1350R417
Type number : D 460 416 068
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 F01/0H

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 3.80...4.20

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 5.00...5.60

Full-load del. with charge press.:

Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 75.70...76.70
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1410
Del. quantity cm³/
1000S.: 57.00...63.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
TD travel mm: 6.10...6.90
mm: (5.80...7.20)
3rd speed 1/min: 800
TD travel mm: 3.80...4.20
mm: (3.30...4.70)
4th speed 1/min: 600
TD travel mm: 2.50...3.30
mm: (2.20...3.60)
6th speed 1/min: 1000
TD travel mm: 4.40...5.20
mm: (4.10...5.50)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 4.20...4.80
2nd speed 1/min: 800

Supply-pump pressure bar: 5.00...5.60
 3rd speed 1/min: 1350
 Supply-pump pressure bar: 7.00...7.60
 4th speed 1/min: 1000
 Supply-pump pressure bar: 5.80...6.40

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Overflow quantity cm³/10s: 41.70...83.40
 2nd speed 1/min: 1350
 Overflow quantity cm³/10s: 55.60...139.00
 2nd speed 1/min: 1350
 Overflow quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1350
 Overflow quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
 Del. quantity cm³/1000s.: 0.00...3.00
 3rd speed 1/min: 1500
 Del. quantity cm³/1000s.: 0.00...15.00
 4th speed 1/min: 1450
 Del. quantity cm³/1000s.: 15.00...45.00
 5th speed 1/min: 1410
 Del. quantity cm³/1000s.: 57.00...63.00
 9th speed 1/min: 1350
 Del. quantity cm³/1000s.: 75.20...78.20
 11th speed 1/min: 800
 Del. quantity cm³/1000s.: 74.20...78.20
 12th speed 1/min: 1000
 Del. quantity cm³/1000s.: 75.70...76.70
 20th speed 1/min: 600
 Del. quantity cm³/1000s.: 58.50...64.50
 3rd speed 1/min: 1500
 Del. quantity cm³/1000s.: (0.00...15.00)
 4th speed 1/min: 1450
 Del. quantity cm³/1000s.: (15.00...45.00)
 5th speed 1/min: 1410
 Del. quantity cm³/1000s.: (55.50...64.50)
 9th speed 1/min: 1350
 Del. quantity cm³/1000s.: (73.70...79.70)
 11th speed 1/min: 800
 Del. quantity cm³/1000s.: (72.70...79.70)
 12th speed 1/min: 1000
 Del. quantity cm³/1000s.: (73.70...78.70)
 20th speed 1/min: 600
 Del. quantity cm³/1000s.: (57.50...65.50)

Mech. shutoff:
 Mech. Abstimmung:

1st speed 1/min: 1350
 Del. quantity cm³/1000s.: 0.00...3.00
 1000s.: (0.00...3.00)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
 Del. quantity cm³/1000s.: 7.00...13.00
 1000s.: (5.00...15.00)

Dispersion cm³/1000s.: 6.0
 1000s.: (6.5)
 2nd speed 1/min: 450
 Del. quantity cm³/1000s.: 0.00...3.00
 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350
 Del. quantity cm³/1000s.: 60.00...120.00
 1000s.: (60.00...120.00)

2nd speed 1/min: 500
 Del. quantity cm³/1000s.: 40.00...70.00
 1000s.: (40.00...70.00)

4th speed 1/min: 100
 Del. quantity cm³/1000s.: 40.00...80.00
 1000s.: (40.00...80.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: K-OT
 MS mm: 1.0...1.4
 SVS max. mm: 3,7

Remarks:

:
 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 D9
Edition : 24.07.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R230
Type number : 0 460 424 026
Customer Part-No. : 390 8194

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9 AUTO

Power KW: 78
Speed 1/min: 1400

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0,3
(from BDC): $\pm 0,02(0,04)$

Start of delivery block
Piston stroke mm: 1.66
mm: $\pm 0,02(0,06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 69.50...70.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 36.50...37.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 8.00...14.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 44.00...50.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 40.00...120.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.10...2.70

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30

Shutoff
electromagnet Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.00...68.00
1000S.: (63.50...71.50)

2nd speed 1/min: 1650
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

4th speed 1/min: 1590
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 44.00...50.00
1000S.: (41.00...53.00)

9th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 64.50...67.50
1000S.: (63.00...69.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 66.50...69.50
1000S.: (64.50...71.50)

12th speed 1/min: 900
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 69.50...70.50
1000S.: (67.00...73.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 36.50...37.50
1000S.: (33.00...41.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 600
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...120.00
1000S.: (40.00...120.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...40.00
1000S.: (0.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...120.00
1000S.: (40.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -

E01

| | |
|------------|-----------------|
| KF | mm: 5.1...5.4 |
| MS | mm: 0.9...1.2 |
| SVS max. | mm: 2.6 |
| LDA stroke | mm: 6.0 |
| XK | mm: 18.8...20.8 |
| XL | mm: 9.8...13.2 |

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 4.0 F
Edition : 23.07.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R346
Type number : 0 460 424 052
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T4.40 110T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,0
mm: +0,02(0,06)

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 92.00...93.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000S.: 78.50...79.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 15.50...19.50

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1440
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 67.00...73.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 110.00...150.00
mind 1000S.: 110.0

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.20...1.00
mm: (0.00...1.20)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1300
Charge press. hPa: 1000
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 7.00...7.60

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 700
Supply-pump pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1300
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 84.50...85.50
(82.00...88.00)

2nd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 20.00...28.00
(17.00...31.00)

3rd speed 1/min: 1580
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
-

5th speed 1/min: 1440
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 67.00...73.00
(64.00...76.00)

9th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 90.50...93.50
(88.50...95.50)

10th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 93.00...96.00
(91.00...98.00)

12th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 92.00...93.00
(89.50...95.50)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 78.50...79.50
(76.00...82.00)

Mech. shutoff:

Mech. Abst.ellung:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.50...19.50
1000S.: (12.50...22.50)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 4.50...10.50
1000S.: (2.50...12.50)

4th speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 120.00...160.00
1000S.: (115.00...165.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...75.00
1000S.: (65.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 110.00...150.00
1000S.: (110.00...150.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0

E04

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4
KF mm: K-0T
MS mm: 0,6...1,0
SVS max. mm: 1,8
XK mm: 20.0...22.0
XL mm: 13,8...17,2

Remarks:

:
:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3.9 N
Edition : 09.10.91
replaces : 07.11.89
Calibrating oil : ISO-4113
Injection pump : VE4/12F1100R370
Type number : 0 460 424 056
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 4 TA 390

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Test inj. tubing : Lochduese 0,5 mm

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +/-0.02(0.04)

Start of delivery block
Piston stroke mm: 1.55
mm: +/-0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.20...3.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 4.30...4.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 85.00...86.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 10.00...16.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1155
Del. quantity cm3/
1000S.: 50.00...58.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 65.00...125.00
mind 1000S.: 65.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 4.80...5.60
mm: (4.50...5.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750

TD travel mm: 3.20...3.60
mm: (2.70...4.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.20...3.80
bar: (2.90...4.10)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
bar: (4.00...5.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Supply-pump
pressure bar: 5.80...6.40
bar: (5.50...6.70)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1100
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1215
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1170
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...60.00
1000S.: (10.00...60.00)
5th speed 1/min: 1155
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...58.00
1000S.: (46.00...62.00)
9th speed 1/min: 1100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 68.00...71.00
1000S.: (66.50...72.50)

10th speed 1/min: 900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...78.00
1000S.: (73.00...80.00)

12th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...86.00
1000S.: (82.50...88.50)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...93.00
1000S.: (83.00...95.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...16.00
1000S.: (8.00...18.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...135.00
1000S.: (85.00...135.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...100.00
1000S.: (70.00...100.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----------|-----------------|
| K | mm: - |
| KF | mm: 5.0...5.4 |
| MS | mm: 0.8...1.2 |
| SVS max. | mm: 1.1 |
| XK | mm: 18.8...20.8 |
| XL | mm: 11.0...14.4 |

Remarks:

: C.D.C. # 391 7934
Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P45
Edition : 09.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1050R388
Type number : 0 460 424 064
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 2.0
mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.50...5.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 64.50...65.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 420
Del. quantity cm3/
1000S.: 18.50...24.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1110
Del. quantity cm3/
1000S.: 32.00...38.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...140.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
TD travel mm: 3.20...4.00
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900

TD travel mm: 2.30...2.70
 mm: (1.80...3.20)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 TD travel mm: 1.10...1.90
 mm: (0.80...2.20)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 2nd speed 1/min: 900
 Supply-pump pressure bar: 4.50...5.10
 bar: (4.30...5.30)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1050
 Supply-pump pressure bar: 4.90...5.50
 bar: (4.70...5.70)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 Supply-pump pressure bar: 3.80...4.40
 bar: (3.60...4.60)
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 1050
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1160
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 5th speed 1/min: 1110
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.00...38.00
 1000S.: (29.00...41.00)
 9th speed 1/min: 1050
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 59.50...62.50
 1000S.: (58.00...64.00)
 11th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 64.00...68.00
 1000S.: (62.00...70.00)
 12th speed 1/min: 900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 64.50...65.50
 1000S.: (62.00...68.00)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.00...66.00
 1000S.: (56.00...68.00)
 Mech. shutoff:
 Mech. Abstimmung:
 1st speed 1/min: 1050
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12
 Electr. shutoff:
 1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Idle delivery:
 1st speed 1/min: 420
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.50...24.50
 1000S.: (16.50...26.50)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 100.00...140.00
 1000S.: (100.00...140.00)
 2nd speed 1/min: 200
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 100.00...140.00
1000S.: (100.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 1.3...1.6

SVS max. mm: 4.2

Remarks:

Heavy-duty fuel-injection pump for 023

DI-engines: only test using timing-

device-travel measuring device with

metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P44
Edition : 09.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1050R388
Type number : 0 460 424 064
Customer Part-No. : 391 7024

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 2.0
mm: ±0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900

Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.50...5.10
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 64.50...65.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 420
Del. quantity cm3/
1000S.: 18.50...24.50
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1110
Del. quantity cm3/
1000S.: 32.00...38.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...140.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
TD travel mm: 3.20...4.00
mm: (2.90...4.30)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 900
TD travel mm: 2.30...2.70
mm: (1.80...3.20)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 750
 TD travel mm: 1.10...1.90
 mm: (0.80...2.20)

Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

2nd speed 1/min: 900
 Supply-pump pressure bar: 4.50...5.10
 bar: (4.30...5.30)

Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1050
 Supply-pump pressure bar: 4.90...5.50
 bar: (4.70...5.70)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 750
 Supply-pump pressure bar: 3.80...4.40
 bar: (3.60...4.60)

Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 41.70...83.40
 cm³/10s: (26.70...98.40)

2nd speed 1/min: 1050
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 55.60...139.00
 cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1160
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1110
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 32.00...38.00
 1000S.: (29.00...41.00)

9th speed 1/min: 1050
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 59.50...62.50
 1000S.: (58.00...64.00)

11th speed 1/min: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 64.00...68.00
 1000S.: (62.00...70.00)

12th speed 1/min: 900
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 64.50...65.50
 1000S.: (62.00...68.00)

20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 58.00...66.00
 1000S.: (56.00...68.00)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1050
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 420
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 18.50...24.50
 1000S.: (16.50...26.50)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 100.00...140.00
 1000S.: (100.00...140.00)

2nd speed 1/min: 200
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 45.00...85.00
 1000S.: (45.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...140.00
1000S.: (100.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 22.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: 5.0...5.4
MS mm: 1.3...1.6
SVS max. mm: 4.2

Remarks:

: C.D.C. # 391 7023

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX.
Edition : 10.10.91
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE4/12F1400R454
Type number : 0 460 424 082
Customer Part-No. :

Customer-specific information

Customer : MAXON

Engine : S4

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): +0,02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.3...2.7
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 5.0...5.6
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 90.5...91.5

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 28.0...32.0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Del. quantity cm³/
1000S.: 69.0...75.0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: -
mind 1000S.: 90.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0.5...1.3
mm: (0.3...1.5)

electromagnet Volt: 12
2nd speed 1/min: 1000
TD travel mm: 2.3...2.7
mm: (2.0...3.0)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1350
TD travel mm: 3.8...4.6
mm: (3.6...4.8)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 4.1...4.7
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Supply-pump
pressure bar: 5.0...5.6
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1350
Supply-pump
pressure bar: 6.5...7.1
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1350
Shutoff
electromagnet Volt: 12
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.0...27.0
1000S.: (14.5...29.5)
2nd speed 1/min: 1450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 69.0...75.0
1000S.: (66.0...79.0)
3rd speed 1/min: 1350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.5...89.5
1000S.: (84.0...91.0)
4th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.5...91.5
1000S.: (88.0...94.0)
5th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.0...65.0
1000S.: (57.0...67.0)

Mech. shutoff:
Mech. Abst. ellung:

1st speed 1/min: 350
Del. quantity cm³/: 0.0...3.0
1000S.: -

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.0...32.0
1000S.: (26.0...34.0)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.0...16.0
1000S.: (6.0...18.0)
3rd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...6.0
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 175
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.0...110.0
1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.0...80.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: 5,2...5,6
MS mm: 0.7...1.1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 10.10.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/12F1400R455
Type number : 0 460 424 083
Customer Part-No. :

Customer-specific information
Customer : MAXON

Engine : S4T

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.0...133.0

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 800
Setting value mm: 2.2...2.6
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 800
Setting value bar: 5.9...6.5
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 136.0...137.0

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 85.0...89.0

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 22.0...26.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 800
Del. quantity cm3/
1000S.: 1066.0...112.0

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 125.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press hPa: 800

TD travel mm: 0.9...1.7
mm: (0.7...1.9)
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 2.2...2.6
mm: (1.9...2.9)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 800
TD travel mm: 2.8...3.6
mm: (2.6...3.8)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 800
Supply-pump pressure bar: 5.0...5.6
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 800
Supply-pump pressure bar: 5.9...6.5
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 800
Supply-pump pressure bar: 6.9...7.5
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1250
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12

Del. quantity cm³/1000S.: 119.0...123.0
(118.0...124.0)
2nd speed 1/min: 1570
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 35.0...45.0
(42.5...47.5)
3rd speed 1/min: 1475
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 106.0...112.0
(104.0...114.0)
4th speed 1/min: 1250
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 135.0...139.0
(134.0...140.0)
5th speed 1/min: 1000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 136.0...137.0
(135.0...138.0)
6th speed 1/min: 800
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 136.0...142.0
(135.0...143.0)
7th speed 1/min: 750
Charge press. hPa: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 119.0...123.0
(118.0...124.0)
8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 85.0...89.0
(84.0...90.0)
Mech. shutoff:
Mech. Abstellung:
1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.0...3.0
Shutoff
electromagnet volt: -
Idle delivery:
1st speed 1/min: 350
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 22.0...26.0
1000S.: (21.0...27.0)
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.0...18.0
1000S.: (9.0...19.0)
3rd speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.0...6.0
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 0.6...1.0

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 P43
Edition : 08.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R389-1
Type number : 0 460 426 066
Customer Part-No. : 391 6113

Customer-specific information
Customer : CDC

Engine : 4 BT- 390 AUTOM.

Power KW: 79
Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017 mm

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +-0.02(0.06)

Start of delivery block
Piston stroke mm: 1.3
mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 4.70...5.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 69.50...70.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 36.50...37.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 8.00...14.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000

Del. quantity cm³/
1000S.: 44.00...50.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...120.00
mind 1000S.: 40.00

KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.10...2.70
bar: (1.90...2.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.70...5.30
bar: (4.50...5.50)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.90...6.50
bar: (5.70...6.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1400
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 67.00...68.00
1000S.: (63.50...71.50)

2nd speed 1/min: 1650
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.50...3.00
1000S.: (0.00...3.00)

6th speed 1/min: 1590
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

9th speed 1/min: 1400
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 64.50...67.50
1000S.: (63.00...69.00)

12th speed 1/min: 900
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 69.50...70.50
1000S.: (67.00...73.00)

18th speed 1/min: 500
Charge press. hPa: -

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.50...37.50
1000S.: (33.00...41.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12
KSB/AFB
valve Volt: 12

Electr. shutoff:

1st speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 600

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 150

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...120.00
1000S.: (40.00...120.00)

2nd speed 1/min: 380

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...40.00
1000S.: (0.00...40.00)

4th speed 1/min: 100

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...120.00
1000S.: (40.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.0...5.4
MS mm: 0.6...1.0
SVS max. mm: 2.7

* Correction at adjusting nut (46)
: C.D.C. # 391 6133

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 W86
Edition : 10.10.91
replaces : 28.03.90
Calibrating oil : ISO-4113

Injection pump : VE6/12F1400R387
Type number : 0 460 426 163
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 AUTO

Power KW: 118
Speed 1/min: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.1
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.20...4.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 500
Charge press hPa: 1000
Setting value bar: 2.40...3.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 67.00...68.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 30.50...31.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 360
Del. quantity cm³/
1000S.: 8.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1530
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 49.00...55.00

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 45.00...105.00
45.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 5.50...6.30
mm: (5.20...6.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 4.20...4.60
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.40...3.00
bar: (2.20...3.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.10...4.70
bar: (3.90...4.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.10...6.70
bar: (5.90...6.90)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
cm³/10s: (26.70...88.40)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 59.00...60.00
cm³/1000s.: (55.50...63.50)

2nd speed 1/min: 1700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
cm³/1000s.: (0.00...3.00)

4th speed 1/min: 1620
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 15.00...55.00
cm³/1000s.: (15.00...55.00)

5th speed 1/min: 1530
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 49.00...55.00
cm³/1000s.: (46.00...58.00)

9th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 61.50...64.50
cm³/1000s.: (60.00...66.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 64.50...67.50
cm³/1000s.: (62.50...69.50)

12th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 67.00...68.00
cm³/1000s.: (64.50...70.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 30.50...31.50
cm³/1000s.: (27.00...35.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1400

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 360
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 360
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...115.00
1000S.: (55.00...115.00)

2nd speed 1/min: 480
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...105.00
1000S.: (45.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.0...5.4
MS mm: 1.1...1.5
SVS max. mm: 2.3

Remarks:

: C.D.C. # 391 6913

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 W67
Edition : 14.10.91
replaces : 22.06.90
Calibrating oil : ISO-4113
Injection pump : VE6/12F1100R402
Type number : 0 460 426 166
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA- 590 I

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.80...5.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 71.50...72.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1180
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 65.00...115.00
mind 1000S.: 65.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 6.20...7.00
mm: (5.90...7.30)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 4.80...5.20
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 3.50...4.30
mm: (3.20...4.60)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.00...4.60
bar: (3.80...4.80)

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30
bar: (4.50...5.50)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.50...6.10
bar: (5.30...6.30)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 64.50...65.50
(61.00...69.00)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 22.50...37.50
(22.50...37.50)

5th speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 47.00...53.00
(44.00...56.00)

9th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 59.50...62.50
(58.00...64.00)

10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 61.50...64.50
(59.50...66.50)

12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 71.50...72.50
(69.00...75.00)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 51.00...52.00
(47.50...55.50)

Mech. shutoff:
Mech. Abst.:

1st speed 1/min: 1100

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 10.00...50.00
1000S.: (10.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...115.00
1000S.: (65.00...115.00)

Shutoff electromagnet:

Cut-in
min voltage : 22.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: 5.0...5.4
MS mm: 1.3...1.7

SVS max. mm: 3.0
XK mm: 21.8...23.8
XL mm: 12.4...15.8

Remarks:

: C.D.C. # 391 7562
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 W54
Edition : 09.10.91
replaces : 04.05.90
Calibrating oil : ISO-4113
Injection pump : VE6/12F1050R381-7
Type number : 0 460 426 177
Customer Part-No. :

Customer-specific information
Customer : CUMMINS

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.03(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure
Speed 1/min: 750
Setting value bar: 3.70...4.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 75.00...76.00
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1100
Del. quantity cm3/
1000S.: 52.00...58.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...120.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
TD travel mm: 5.00...5.80
mm: (4.70...6.10)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750

TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500

TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump
pressure bar: 2.60...3.20
bar: (2.40...3.40)

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750

Supply-pump
pressure bar: 3.70...4.30
bar: (3.50...4.50)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.90...5.50
bar: (4.70...5.70)

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1050

Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1200

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1130

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1100

Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 52.00...58.00
1000S.: (49.00...61.00)

9th speed 1/min: 1050

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 69.50...72.50
1000S.: (68.00...74.00)

10th speed 1/min: 900

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 72.50...75.50
1000S.: (70.50...77.50)

12th speed 1/min: 750

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...76.00
1000S.: (72.50...58.50)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 61.50...69.50
1000S.: (59.50...71.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1050
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 22.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

| | |
|----------|-----------------|
| K | mm: - |
| KF | mm: 5.0...5.4 |
| MS | mm: 0.8...1.2 |
| SVS max. | mm: 2.2 |
| XK | mm: 18.8...20.8 |
| XL | mm: 11.6...15.0 |

Remarks:

: C.D.C. # 391 6923

Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T2
Edition : 08.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R307-2
Type number : 0 460 426 182
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 LXF/190

Power KW: 1200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.70...2.10

Supply-pump pressure

Speed 1/min: 800

F03

Charge press hPa: 1000
Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 86.50...87.50
Dispersion cm³/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 54.50...55.50

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 6.50...13.50
Del. quantity cm³/
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1260
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 62.00...68.00

Start:

Speed 1/min: 100
mind 1000S.: 60.00

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm³/
difference 1000S.: 9.00...17.00
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1000
Charge press hPa: 1000
TD-travel
difference mm: 0.30...0.50
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1000
Charge press hPa: 1000
Supply pump
pressure
difference bar: 0.00...0.20

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 3.90...4.70
mm: (3.60...5.00)
3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.70...2.10
mm: (1.20...2.60)
5th speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 4.50...5.30
mm: (4.50...5.30)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 4.20...4.80
bar: (3.90...5.10)
2nd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70
bar: (5.80...7.00)
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 7.90...8.50
bar: (7.60...8.80)

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1200
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting point hPa: 350
LDA-stroke mm: 6.2
Del. quantity cm³/: 82.00...83.00
1000S.: (80.00...85.00)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1330
Charge press. hPa: 1000

Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)
4th speed 1/min: 1280
Charge press. hPa: 1000
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)
5th speed 1/min: 1260
Charge press. hPa: 1000
Del. quantity cm³/: 62.00...68.00
1000S.: (60.50...69.50)
9th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 80.50...85.50
1000S.: (79.00...87.00)
12th speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm³/: 86.50...87.50
1000S.: (84.50...89.54)
15th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/: 89.00...94.00
1000S.: (87.50...95.50)
17th speed 1/min: 600
Charge press. hPa: 1000
Del. quantity cm³/: 95.00...100.00
1000H.: (93.50...101.50)
18th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 54.50...55.50
1000S.: (52.50...57.50)
20th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 98.00...107.00
1000S.: (96.50...108.50)

Delivery-quant. and breakaway char.:

Inj.-qty. values, temp.-compensated
temperatura

Charge press. hPa: 1000

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 6.50...13.50
1000S.: (4.50...15.50)
Dispersion cm³/: 3.5
1000S.: (4.0)
2nd speed 1/min: 400

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : 9.00...17.00
difference 1000S.: (9.00...17.00)
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : 0.30...0.50
difference mm: (0.30...0.50)
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure : 0.00...0.20
difference bar: (0.00...0.20)

Automatic starting fuel delivery:

1st speed 1/min: 220
Del. quantity cm³/: 75.00...125.00
1000S.: (75.00...125.00)

2nd speed 1/min: 380
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

4th speed 1/min: 100
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

Mounting and assembly dimensions:

Designation

| | |
|----------|---------------|
| K | mm: - |
| KF | mm: - |
| MS | mm: 0.8...1.2 |
| SVS max. | mm: 3.9 |

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.9 H2
Edition : 15.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R335
Type number : 0 460 484 023
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M704 DA 13.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Setting value mm: 5.40...5.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1600

Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1600
Del. quantity cm³/
1000S.: 22.30...23.30

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 390
Del. quantity cm³/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2700
Del. quantity cm³/
1000S.: 10.00...16.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 27.00...53.00
mind 1000S.: 27.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 12
Inj.-qty. cm³/
difference 1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1500
TD-travel
difference mm: 0.90...1.10
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2500
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1600
TD travel mm: 5.40...5.80
mm: (4.90...6.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2000
TD travel mm: 7.60...8.40
mm: (7.30...8.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2500
Supply-pump pressure bar: 7.80...8.40
bar: (7.60...8.60)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1600
Supply-pump pressure bar: 5.00...5.60
bar: (4.80...5.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 600
Supply-pump pressure bar: 2.20...2.80
bar: (2.00...3.00)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...138.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
5th speed 1/min: 2700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 10.00...16.00
(9.00...17.00)
9th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 22.40...24.80
(21.30...25.90)
10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 22.30...24.70
(21.20...25.80)
12th speed 1/min: 1600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 22.30...23.30
(20.50...25.10)
20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 16.30...19.30
(14.80...20.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 390
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 390
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 8.00...12.00
(5.00...15.00)

Dispersion cm³/1000S.: 2.5
(2.5)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...6.00
(0.00...6.00)

4th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/ : 7.00...13.00
difference 1000S.: (7.00...13.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : 0.90...1.10
difference mm: (0.90...1.10)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...35.00
1000S.: (25.00...35.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...23.00
1000S.: (13.00...23.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...53.00
1000S.: (27.00...53.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.9 C1
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F1500R401
Type number : 0 460 484 036
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.B 1.9L.
Power KW: 38

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 1.0
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

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Speed 1/min: 1400
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Del. quantity cm³/
1000S.: 34.50...35.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 430
Del. quantity cm³/
1000S.: 6.00...10.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...55.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1400
TD travel mm: 4.00...4.40
mm: (3.50...4.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.70...4.30
bar: (3.50...4.50)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1400

Supply-pump pressure bar: 5.80...6.40
 bar: (5.60...6.60)

Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (27.80...97.30)

2nd speed 1/min: 1400
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...138.90
 (41.70...152.90)

Shutoff electromagnet Volt: 12

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1600
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...6.00
 (0.00...6.00)

4th speed 1/min: 1570
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...6.00
 (0.00...12.00)

5th speed 1/min: 1550
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 8.50...12.00
 (1.50...22.50)

6th speed 1/min: 1530
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 16.50...28.50
 (12.00...33.00)

7th speed 1/min: 1510
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 27.00...39.00
 (22.50...43.50)

12th speed 1/min: 1400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 34.50...35.50
 (32.80...37.20)

20th speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 25.20...28.20
 (23.70...29.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 430
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 430
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 6.00...10.00
 (4.00...12.00)

Dispersion cm³/1000S.: 2.0
 (3.0)

2nd speed 1/min: 550
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...4.00
 (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 30.00...64.00
 (30.00...64.00)

2nd speed 1/min: 380
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 10.00...30.00
 (10.00...30.00)

4th speed 1/min: 100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 35.00...55.00
 (35.00...55.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation mm: 3.2...3.4
 K mm: 5.2...5.6
 KF mm: 1.1...1.5
 MS mm: 17.0...19.0
 XK mm: 11.8...15.2
 XL

Remarks:

⋮



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 1.9 C2
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2000R401-1
Type number : 0 460 484 037
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.B 1.9L.

Power KW: 45

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.40...4.80
Shutoff
electromagnet Volt: 12

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Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm³/
1000S.: 34.30...35.30
Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 430
Del. quantity cm³/
1000S.: 6.00...10.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2130
Del. quantity cm³/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
TD travel mm: 5.90...6.70
mm: (5.60...7.00)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.40...4.80
mm: (3.90...5.30)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750

TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump
pressure bar: 3.70...4.30
bar: (3.50...4.50)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500

Supply-pump
pressure bar: 6.10...6.70
bar: (5.90...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1900

Supply-pump
pressure bar: 7.00...7.60
bar: (6.80...7.80)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)

2nd speed 1/min: 1900
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (40.70...153.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2180

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

4th speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...12.00
1000S.: (0.00...12.00)

5th speed 1/min: 2130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (1.00...23.00)

6th speed 1/min: 2110
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 17.00...29.00
1000S.: (12.00...34.00)

9th speed 1/min: 1900
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 31.70...33.70
1000S.: (30.50...34.90)

12th speed 1/min: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 34.50...35.50
1000S.: (32.80...37.20)

20th speed 1/min: 500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 25.20...28.20
1000S.: (23.70...29.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 430
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 430
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
1000S.: (3.0)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...64.00
1000S.: (30.00...64.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.1...1.5 |
| XK | mm: 17.0...19.0 |
| XL | mm: 13.1...16.5 |

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.5 D2
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2150R403
Type number : 0 460 484 038
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 7 TE/Y Cata

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery block
Piston stroke mm: 0.3
mm: +0.02(0.04)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 49.00...50.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 32.50...33.50

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 3.50...4.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2375
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 19.00...23.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 42.00...68.00
mind 1000S.: 42.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference 1000S.: 22.50...24.50

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: -
 TD-travel
 difference mm: 1.70...1.90
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
 Charge press hPa: 1000
 TD travel mm: 6.60...7.40
 mm: (6.30...7.70)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.60...3.00
 mm: (2.10...3.50)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.10...1.90
 mm: (0.80...2.20)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.20...3.80
 bar: (3.00...4.00)

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.60...6.20
 bar: (5.40...6.40)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2100
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 8.20...8.80
 bar: (8.00...9.00)

Shutoff
 electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.80...98.30)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...138.90
 quantity cm³/10s: (40.70...153.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
 Charge-air pressure-setting
 point hPa: 300
 LDA-stroke mm: 6.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.50...41.50
 1000s.: (38.00...44.00)

2nd speed 1/min: 2600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000s.: (0.00...6.00)

5th speed 1/min: 2375
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 19.00...23.00
 1000s.: (17.00...25.00)

8th speed 1/min: 2275
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.00...39.00
 1000s.: (28.00...40.00)

9th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...47.50
 1000s.: (44.30...48.70)

12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm³/: 49.00...50.00
 1000s.: (47.20...51.70)

18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 32.50...33.50
1000S.: (30.00...36.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 43.50...46.50
1000S.: (42.00...48.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 2100
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...4.50
1000S.: (2.00...6.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Charge press. hPa: -

Inj.-qty. cm³/: 22.50...24.50
difference 1000S.: (18.50...28.50)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : 1.70...1.90
difference mm: (1.70...1.90)
Shutoff

electromagnet Volt: 12
4th speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : 0.90...1.30
difference bar: (0.70...1.50)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...74.00
1000S.: (40.00...74.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...68.00
1000S.: (42.00...68.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.2...1.6
LDA stroke mm: 6.5
XK mm: 20.0...23.0
XL mm: 13.2...16.7

Remarks:
Overflow restriction 0.55 mm - Part No.
..303 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1.9 C3
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F1100R401-3
Type number : 0 460 484 039
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.B M344/M840

Power KW: 35

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.10...2.50

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 31.90...32.90
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 430
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1170
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1000
TD travel mm: 2.10...2.50
mm: (1.60...3.00)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump
 pressure bar: 4.10...4.70
 bar: (3.90...4.90)

Shutoff
 electromagnet Volt: 12

2nd speed 1/min: 1000
 Supply-pump
 pressure bar: 5.30...5.90
 bar: (5.10...6.10)

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.80...98.30)

2nd speed 1/min: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...138.90
 (40.70...153.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1230
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000S.: (0.00...6.00)

4th speed 1/min: 1190
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000S.: (0.00...12.00)

5th speed 1/min: 1170
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (2.00...22.00)

6th speed 1/min: 1150
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 16.00...28.00
 1000S.: (12.00...32.00)

7th speed 1/min: 1130
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 22.00...29.00
 1000S.: (22.00...36.00)

12th speed 1/min: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.90...32.90
 1000S.: (30.20...34.60)

20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.70...28.70
 1000S.: (24.20...30.20)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 430
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 430
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...9.00
 1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
 1000S.: (3.0)

2nd speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...64.00
 1000S.: (30.00...64.00)

2nd speed 1/min: 380
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...30.00
 1000S.: (10.00...30.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...61.00
 1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|---------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.1...1.5 |

Remarks:

Overflow restriction 0.55 mm - Part No.
..303 :



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P8
Edition : 22.07.91
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/8F2300R317-5
Type number : 0 460 484 044

Customer-specific information
Customer : RNUR

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00
Inlet press., bar : 0.30...0.40

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073
Outside diameter : 6
x Wall thickness : 2
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
AFB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00
KSB/AFB 11
valve Volt: -
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
1000S.: 6.50...10.50
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00
KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: -
mind 1000S.: 40,0
KSB/AFB
Valve Volt: -
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm³/
 difference 1000S.: 7.70...9.70
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 TD-travel
 difference mm: 0.30...0.50
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Supply pump
 pressure
 difference bar: 0.10...0.30
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310
 TD travel mm: 0.60...3.00 A
 mm: -
 KSB/AFB
 valve Volt: 12
 electromagnet Volt: 12
 2nd speed 1/min: 500
 TD travel mm: 1.90...4.30 B
 mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 750
 TD travel mm: 1.90...2.70
 mm: (1.60...3.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1250
 TD travel mm: 4.10...4.50
 mm: (3.60...5.00)
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 2250

TD travel mm: 7.80...8.60
 mm: -
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump
 pressure bar: 3.10...3.70
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4,5...5.1
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2250
 Supply-pump
 pressure bar: 7.30...7.60
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2950
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 0.00...5.00
 1000S.: -
 2nd speed 1/min: 2650

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...15.00
 1000S.: (6.00...16.00)
 3rd speed 1/min: 2450
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 22.00...28.00
 1000S.: (21.00...29.00)
 4th speed 1/min: 2250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.50...33.50
 1000S.: (30.20...34.80)
 5th speed 1/min: 2000
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.30...32.30
 1000S.: (29.00...33.60)
 6th speed 1/min: 1625
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.70...32.70
 1000S.: (28.90...33.50)
 7th speed 1/min: 1250
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...32.00
 1000S.: (29.20...33.80)
 8th speed 1/min: 750
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.10...33.10
 1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: -

F24

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 410
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...10.50
 1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...11.00
 1000S.: (5.00...13.00)

Residual:

1. Rotacao 1/min: 500
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 100
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...70.00
 1000S.: -

2nd speed 1/min: 210
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...75.00
 1000S.: -

3rd speed 1/min: 310
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...45.00
 1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4

KF mm: 5,3...5,7

MS mm: 1,1...1,5

A = KSB adjustment point

B = KSB curve point

emarks:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2,1 F4
Edition : 07.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R281
Type number : 0 460 494 255
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD11ATEY

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Indicator setting
Piston stroke mm: 0,3
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.30...2.70

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.50...3.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 49.00...55.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...80.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 5.50...6.30
 mm: (5.20...6.60)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.30...2.70
 mm: (2.00...3.00)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.90...1.70
 mm: (0.60...2.00)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.30...4.90
 bar: (4.00...5.20)

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.00...5.60
 bar: (4.70...5.90)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.10...7.70
 bar: (6.80...8.00)

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.00...83.00
 (26.00...98.00)

2nd speed 1/min: 2000
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.00...138.00
 (40.00...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
 Charge-air pressure-setting point hPa: 400
 LDA-stroke mm: 7.1
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 56.00...57.00
 (53.50...59.50)

2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 5.00...11.00
 (4.00...12.00)

3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 33.50...40.50
 (33.00...41.00)

5th speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 49.00...55.00
 (48.00...56.00)

9th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 56.00...59.00
 (55.20...59.80)

10th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 60.50...63.50
 (59.50...64.50)

12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 61.00...62.00
 (59.20...63.80)

18th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 42.00...43.00
 (40.20...44.80)

20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 60.00...63.00
 (59.00...64.00)

Mech. shutoff:

Mech. Abst.ellung:

1st speed 1/min: 2000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (10.00...16.00)

Dispersion cm³/: 2.5
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...11.00

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (9.00...15.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (0.50...5.50)

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'echappement-ARF)

1st speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.50...25.50
1000S.: (22.00...28.00)
2nd speed 1/min: 500

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.5...21.5

Automatic starting fuel delivery:

2nd speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...44.00
1000S.: (36.50...44.50)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...78.00
1000S.: (74.50...79.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...80.00
1000S.: (68.00...82.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.9...1.3

Ajustement Potentiometer:

Angle for
pot. °: 25
Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.76

Remarks:

* Correction at adjusting nut (46)

For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.1 F7
Edition : 11.10.91
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R396
Type number : 0 460 494 264
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 11 ATE

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 41.50...42.50

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 475
Del. quantity cm3/
1000S.: 3.50...4.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 44.50...48.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 43.00...73.00
mind 1000S.: 43.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 15.00...19.00

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement

correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.40...0.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.50...7.30
mm: (6.20...7.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
bar: (4.20...5.20)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
bar: (5.50...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
bar: (7.30...8.30)

Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 700
Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)
2nd speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (40.70...154.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 7.5
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.00...59.00)

2nd speed 1/min: 2900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...42.00
1000S.: (33.00...45.00)

5th speed 1/min: 2300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.50...48.50
1000S.: (42.50...50.50)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...58.50
1000S.: (55.30...59.70)

12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quynity cm³/: 61.00...62.00
1000S.: (59.30...63.70)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.50...42.50
1000S.: (39.00...45.00)

20th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 62.50...65.50
1000S.: (61.00...67.00)
21th speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.50...45.50
1000S.: (38.00...48.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 475
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...4.50
1000S.: (2.00...6.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250
Inj.-qty. cm³: 15.00...19.00
difference 1000S.: (12.00...22.00)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : 0.40...0.60
difference mm: (0.40...0.60)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Supply pump-
pressure : 0.50...0.90
difference bar: (0.30...1.10)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...80.00
1000S.: (40.00...80.00)

2nd speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...53.00
1000S.: (30.00...53.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...73.00
1000S.: (43.00...73.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 0.7...1.1

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.1 F5
Edition : 11.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R397
Type number : 0 460 494 265
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 11 A/BVM

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 030

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.0
mm: ±0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.20...3.60

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Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.20...5.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 37.70...38.70

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 425
Del. quantity cm³/
1000S.: 3.00...4.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm³/
1000S.: 14.00...18.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 48.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm³/
difference 1000S.: 18.20...22.20

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: 0.40...0.60

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement

pompa di mandata (FP)
1.Speed 1/min: 1250
Supply pump
pressure
difference bar: 0.70...1.10
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200
TD travel mm: 7.10...7.90
mm: (6.80...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.20...3.60
mm: (2.90...3.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
bar: (7.50...8.50)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.20...5.80
bar: (5.00...6.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Supply-pump
pressure bar: 3.90...4.50
bar: (3.70...4.70)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.90
quantity cm³/10s: (40.70...154.90)

Delivery-quant. and breakaway char.:

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.00...18.00
1000S.: (12.00...20.00)

8th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.00...32.00
1000S.: (24.00...34.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.20...40.20
1000S.: (37.00...41.40)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.70...38.70
1000S.: (36.00...40.40)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...38.50
1000S.: (34.00...40.00)

21th speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...40.00
1000S.: (32.50...42.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 2200
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...4.00
1000S.: (1.50...5.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 18.20...22.20
difference 1000S.: (15.20...25.20)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.40...0.60
difference mm: (0.40...0.60)

Shutoff
electromagnet Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
3rd speed 1/min: 1250
Supply pump-
pressure : 0.70...1.10
difference bar: (0.50...1.30)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

2nd speed 1/min: 325
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...78.00
1000S.: (48.00...78.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.0...1.4

Remarks:

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.1 F6
Edition : 11.10.91
Calibrating oil : ISO-4113
Injection pump : VE4/9F2150R396-1
Type number : 0 460 494 275
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 11 ATE-BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 41.50...42.50

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 475
Del. quantity cm3/
1000S.: 3.50...4.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 44.20...48.20

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 43.00...73.00
Wind 1000S.: 43.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.meas ment:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 15.00...19.00

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement

correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.40...0.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.50...7.30
mm: (6.20...7.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
bar: (4.20...5.20)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
bar: (5.50...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
bar: (7.30...8.30)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)
2nd speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (40.70...154.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 7.5
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.00...59.00)

2nd speed 1/min: 2800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...42.00
1000S.: (33.00...45.00)

5th speed 1/min: 2300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.20...48.20
1000S.: (42.20...50.20)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...58.50
1000S.: (55.30...59.70)

12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 61.00...62.00
1000S.: (59.30...63.70)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.50...42.50
1000S.: (39.00...45.00)

20th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 62.50...65.50
1000S.: (61.00...67.00)

21th speed 1/min: 450

Charge press. hPa: -

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 38.00...43.00
1000S.: (35.50...45.50)

Mech. shutoff:

Mech. Abststellung:

1st speed 1/min: 2000

Charge press. hPa: 1000

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350

Charge press. hPa: -

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

High Idle:

1st speed 1/mi: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 475

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 3.50...4.50
1000S.: (2.00...6.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

3rd speed 1/min: 1250

Inj.-qty. cm³/: 15.00...19.00
difference 1000S.: (12.00...22.00)

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1250

TD-travel : 0.40...0.60

difference mm: (0.40...0.60)

Shutoff

electromagnet Volt: 12

4th speed 1/min: 1250

Supply pump-

pressure : 0.50...0.90

difference bar: (0.30...1.10)

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 40.00...80.00
1000S.: (40.00...80.00)

2nd speed 1/min: 325

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 30.00...53.00
1000S.: (30.00...53.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 43.00...73.00
1000S.: (43.00...73.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS mm: 0.7...1.1

Remarks:

⋮

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Overflow restriction 0.55 mm - Part No. ..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P5
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R423
Type number : 0 460 494 282
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 760

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 0.76
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.60...4.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 51.00...52.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 38.50...39.50
Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/
1000S.: 3.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 7.50...13.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...90.00
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 7.50...11.50

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: -
 TD-travel
 difference mm: 1.20...1.40
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Charge press hPa: -
 Supply pump
 pressure
 difference bar: 0.10...0.30
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2125
 Charge press hPa: 1000
 TD travel mm: 6.80...7.60
 mm: (6.50...7.90)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 3.60...4.00
 mm: (3.10...4.50)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.30...3.10
 mm: (2.00...3.40)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.40...5.00
 bar: (4.10...5.30)

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.10...5.70
 bar: (4.80...6.00)

Shutoff
 electromagnet Volt: 12

3rd speed 1/min: 2125
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.50...8.10
 bar: (7.20...8.40)

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2125
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...138.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
 Charge-air pressure-setting
 point hPa: 300
 LDA-stroke mm: 6.4
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...46.50
 1000S.: (43.00...49.00)

2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 2500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.50...13.50
 1000S.: (6.50...14.50)

8th speed 1/min: 2350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.40...36.40
 1000S.: (27.40...37.40)

9th speed 1/min: 2125
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.10...50.10
 1000S.: (46.80...51.40)

11th speed 1/min: 1625
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.90...50.90
 1000S.: (47.60...52.20)
 12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.00...52.00
 1000S.: (49.30...53.80)
 15th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.60...53.60
 1000S.: (49.10...55.10)
 16th speed 1/min: 1250
 Charge press. hPa: -
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 36.60...39.60
 1000H.: (35.10...41.10)
 18th speed 1/min: 750
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...39.50
 1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...8.50
 1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...10.00
 1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 3.50...7.50
 1000S.: (3.50...7.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 7.50...11.50
 difference 1000S.: (7.50...11.50)
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : 1.20...1.40
 difference mm: (1.20...1.40)
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure : 0.10...0.30
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: (50.00...90.00)

2nd speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...50.00
 1000S.: (20.00...50.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|------------|---------------|
| K | mm: 3.6...3.8 |
| KF | mm: KOT |
| MS | mm: 1.0...1.4 |
| SVS max. | mm: 3.8 |
| LDA stroke | mm: 6.4 |

Remarks:

⋮

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2.0 P6
Edition : 14.10.91
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R423-1
Type number : 0 460 494 288
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 760 CA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 0.76
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.60...4.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm³/
1000S.: 3.50...7.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...90.00
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 7.50...11.50

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: 1.20...1.40

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: 0.10...0.30
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.60...4.00
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
bar: (4.10...5.30)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
bar: (4.80...6.00)

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 2125
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
bar: (7.20...8.40)

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.4
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)

2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)

8th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (27.40...37.40)

9th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)

11th speed 1/min: 1625
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.90...50.90
1000S.: (47.60...52.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...52.00
1000S.: (49.20...53.80)
15th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.60...53.60
1000S.: (49.10...55.10)
16th speed 1/min: 1250
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.60...39.60
1000H.: (35.10...41.10)
18th speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...39.50
1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.50...8.50
1000S.: (2.50...10.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 500

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Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...7.50
1000S.: (3.50...7.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : 7.50...11.50
difference 1000S.: (7.50...11.50)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : 1.20...1.40
difference mm: (1.20...1.40)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : 0.10...0.30
difference bar: (0.10...0.30)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...50.00
1000S.: (20.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|------------|---------------|
| K | mm: 3.6...3.8 |
| KF | mm: KOT |
| MS | mm: 1.0...1.4 |
| SVS max. | mm: 3.8 |
| LDA stroke | mm: 6.4 |

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 i
 Edition : 23.10.91
 Replaces : 10.85
 Test oil : ISO-4113
 Combination no. : 0 400 646 251
 Injection pump
 Pump designation : PE6A90D410RS2524
 EP type number : 0 410 696 179
 Governor
 Governor design. : RQ225/1200AB1008L
 Governor no. : 0 420 200 061

Customer-spec. information
 Customer : DAF

Engine : DH825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.30...2.40
 : (2.25...2.45)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.40...9.50
 Del. quantity cm³/ : 7.1...7.2
 100 s: (6.9...7.4)
 Spread cm³ : 0.3
 100 s: (0.5)

2nd speed rpm : 225.0
 Rack travel in mm : 6.5...6.7
 Del. quantity cm³/ : 0.9...1.5
 100 s: (0.7...1.7)
 Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del. quantity : 71.0...72.0
 1000 : (69.0...74.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0
 Testing:
 1st rack travel in: 8.40
 Speed rpm : 1245...1260

2nd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 8.7

Testing:
Speed rpm : 100
Minimum rack trave: 10.20
Speed rpm : 225
Rack travel in mm : 8.60...8.80
Rack travel in mm : 2.00
Speed rpm : 410...450
Speed rpm : 570
Maximum rack trave: 1.00

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...230.0
1000 s: (217.0...233.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 9.0...15.0
1000 s: (7.0...17.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 3
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 646 279
 Injection pump
 Pump designation : PE6A95D410LS2621
 EP type number : 0 410 696 982
 Governor
 Governor design. : RQV300...1150AB1195-
 1L
 Governor no. : 0 420 212 231

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.30...9.40

Del. quantity cm³/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.50

2nd speed rpm : 375

travel mm : 2.30...2.80

3rd speed rpm : 410

travel mm : 2.70...3.20

4th speed rpm : 760

travel mm : 4.80...5.30

5th speed rpm : 1200

travel mm : 8.60...9.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1290

Rack travel in mm : 7.00...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 200
Minimum rack travel: 11.20
Speed rpm : 300
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.30...9.40
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
3rd speed rpm : 800
Rack travel in m: 9.80...10.00
4th speed rpm : 1000
Rack travel in m: 9.50...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 75.0...77.0
1000 s: (72.5...79.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 15.20...15.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,7 b
 Edition : 01.02.91
 Replaces : 3.83
 Test oil : ISO-4113
 Combination no. : 0 400 835 008
 Injection pump
 Pump designation : PES5A80D410/3RS2579
 EP type number : 0 410 885 007
 Governor
 Governor design. : RQV300...1400AB1048D
 L
 Govenrer no. : 0 420 214 243

Customer-spec. information
 Customer : KHD

Engine : F5L912

1st version kw : 74.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400
 Rack travel in mm : 11.00...11.10
 Del.quantity cm³/ : 6.0...6.1
 100 s: (5.8...6.2)
 Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 300.0
 Rack travel in mm : 8.9...9.1
 Del.quantity cm³/ : 0.9...1.5
 100 s: (0.7...1.6)
 Spread cm³ : 0.2
 100 s: (0.3)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.70...0.90
 2nd speed rpm : 415
 travel mm : 1.80...2.20
 3rd speed rpm : 465
 travel mm : 2.30...2.70
 4th speed rpm : 700
 travel mm : 3.20...3.60
 5th speed rpm : 1445
 travel mm : 6.60...7.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1770
 Rack travel in mm : 15.20...17.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del.quantity : 60.0...61.0
 1000 : (58.5...62.5)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 10.00
Speed rpm : 1480...1490
2nd rack travel in: 4.00
Speed rpm : 1710...1740
4th rack travel in: 1850
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Speed rpm : 750
Maximum rack trave: 1.00

CONSTANT REGULATION
Speed rpm : 380...480

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 11.00...11.10
2nd speed rpm : 500
Rack travel in m: 12.00...12.10
3rd speed rpm : 990
Rack travel in m: 11.60...11.80
4th speed rpm : 1180
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)
Speed rpm : 1000
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1480...1490

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 w 3
 Edition : 08.10.91
 Replaces : 18.6.91
 Test oil : ISO-4113

Combination no. : 0 400 846 578

Injection pump
 Pump designation : PES6A95D320RS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1200AB1236-7R
 Governor no. : 0 420 213 119

Customer-spec. information
 Customer : NAVISTAR

Engine : DT 466

1st version kW : 145.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.60

Del. quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 1.7...2.1
 100 s: (1.5...2.3)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.60...9.00
 2nd speed rpm : 1250
 travel mm : 7.30...7.50
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 900
 Del. quantity : 101.5...103.5
 1000 : (99.5...105.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 12.50
Speed rpm : 1230...1260
2nd rack travel in: 4.00
Speed rpm : 1385...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.50...13.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 225
Rack travel in m: 10.90...11.00
3rd pressure hPa : 500
Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

G25

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1230...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #
: 1815517C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 y
 Edition : 08.10.91
 Replaces : 18.6.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 579
 Injection pump
 Pump designation : PES6A95D32ORS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1350AB1248R
 Governor no. : 0 420 213 120

Customer-spec. information
 Customer : NAVISTAR

Engine : DT 360

1st version kw : 126.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 7.30...7.50

2nd speed rpm : 1460
 travel mm : 8.10...8.50

3rd speed rpm : 550
 travel mm : 3.10...3.70

4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1350
 Aneroid pressure h: 900
 Del. quantity : 84.0...86.0
 1000 : (82.0...88.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.30
Speed rpm : 1390...1420
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 240
Rack travel in m: 10.00...10.10
3rd pressure hPa : 435
Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 61.5...65.5
1000 s: (59.5...67.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #
: 1816726C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 y 1
 Edition : 08.10.91
 Replaces : 21.8.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 580
 Injection pump
 Pump designation : PES6A95D32ORS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1350AB1248-1R
 Governor no. : 0 420 213 121

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA 360

1st version kW : 138.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder assembly : 1 688 901 110

Opening pressure, bar : 250...253

Orifice plate diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del. quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.30
Speed rpm : 1390...1420
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 215
Rack travel in m: 10.00...10.10
3rd pressure hPa : 430
Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 67.0...71.0
1000 s: (65.0...73.0)

BREAKAWAY

H01

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #
: 1816728C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 e
 Edition : 23.10.91
 Replaces : 26.7.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 588
 Injection pump
 Pump designation : PES6A95D420LS2804
 EP type number : 0 410 896 899
 Governor
 Governor design. : RQ200/1050AB1246-1R
 Governor no. : 0 420 201 652

Customer-spec. information
 Customer : RABA

Engine : D2156 HM6 UT
 1st version kW : 162.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 1.80...1.90
 : (1.75...1.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12.00...12.10
 Del.quantity cm³/ : 11.9...12.1
 100 s: (11.7...12.3)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 200.0
 Rack travel in mm : 7.4...7.6
 Del.quantity cm³/ : 1.1...1.5
 100 s: (0.8...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 500
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 700
 Del.quantity : 119.0...121.0
 1000 : (117.0...123.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 500
 Rack travel in mm : 20.0
 Testing:
 1st rack travel in: 11.00
 Speed rpm : 1095...1110
 2nd rack travel in: 4.00
 Speed rpm : 1125...1155

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 200
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 280...320

TORQUE CONTROL

Dimension a mm : 0.45
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.00...12.10
2nd speed rpm : 415
Rack travel in m: 13.10...13.50
3rd speed rpm : 680
Rack travel in m: 12.70...13.10
4th speed rpm : 835
Rack travel in m: 12.20...12.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 260
Rack travel in m: 12.50...12.60
3rd pressure hPa : 180
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 140 (160)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 113.0...116.0
1000 s: (110.5...118.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...160.0
1000 s: (147.0...163.0)
Rack travel in mm : 17.50...17.70

Remarks:

:

Set idle stop at 200 min -1 to a
control-rod travel of 6.5 mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 8
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 596
 Injection pump
 Pump designation : PES6A95D32ORS2693Z
 EP type number : 0 410 896 913
 Governor
 Governor design. : RQ300/1300AB1253-1R
 Governor no. : 0 420 201 650

Customer-spec. information
 Customer : DAF

Engine : NS 156

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850
 Rack travel in mm : 11.90...12.00
 Del. quantity cm³/ : 8.6...8.7
 100 s: (8.4...8.9)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.5
 Del. quantity cm³/ : 0.6...1.0
 100 s: (0.3...1.2)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 725
 Rack travel in mm : 7.50...8.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 700
 Del. quantity : 86.0...87.0
 1000 : (84.0...89.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 725
 Rack travel in mm : 8.0

Testing:
 1st rack travel in: 10.70
 Speed rpm : 1335...1350
 2nd rack travel in: 4.00
 Speed rpm : 1410...1440
 4th rack travel in: 1550
 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack trave: 6.40

Speed rpm : 300

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

Speed rpm : 520...560

TORQUE CONTROL

Dimension a mm : 0.55

Torque control curve - 1st version

1st speed rpm : 1290

Rack travel in m: 11.70...11.80

2nd speed rpm : 730

Rack travel in m: 13.00...13.50

3rd speed rpm : 925

Rack travel in m: 12.50...13.10

4th speed rpm : 1000

Rack travel in m: 12.10...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.30...10.40

2nd pressure hPa : 290

Rack travel in m: 11.50...11.60

3rd pressure hPa : 250

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1290

Del.quantity cm3/ : 87.0...89.0

1000 s: (84.5...91.5)

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 54.0...55.0

1000 s: (52.0...57.0)

BREAKAWAY

H05

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1335...1350

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.30...6.50

Del.quantity cm3/ : 6.0...10.0

1000 s: (3.5...12.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 5,9 e
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 597
 Injection pump
 Pump designation : PES6A90D410RS2813
 EP type number : 0 410 896 089
 Governor
 Governor design. : RQV300...1250AB1264-
 L
 Governor no. : 0 420 212 233

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8065.25.000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.90...11.00
 Del. quantity cm³/ : 7.6...7.7
 100 s : (7.4...7.9)
 Spread cm³ : 0.3
 100 s : (0.5)
 2nd speed rpm : 300.0
 Rack travel in mm : 8.2...8.4
 Del. quantity cm³/ : 1.1...1.7
 100 s : (0.9...1.9)
 Spread cm³ : 0.2
 100 s : (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.60...1.10
 2nd speed rpm : 445
 travel mm : 2.20...2.70
 3rd speed rpm : 540
 travel mm : 2.80...3.30
 4th speed rpm : 897
 travel mm : 5.00...5.50
 5th speed rpm : 1324
 travel mm : 8.00...8.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1495
 Rack travel in mm : 9.60...12.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del. quantity : 76.0...77.0
 1000 : (74.0...79.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 10.90
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1510
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 300
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 8.20...8.40

CONSTANT REGULATION
Speed rpm : 350...450

TORQUE CONTROL
Dimension a mm : 2.20
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
3rd speed rpm : 695
Rack travel in m: 12.80...13.00
4th speed rpm : 915
Rack travel in m: 12.10...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.50
2nd pressure hPa : 315
Rack travel in m: 12.70...12.80
3rd pressure hPa : 250
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 76.0...77.0
1000 s: (73.5...79.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 50.0...51.0
1000 s: (48.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)
Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 L 9
 Edition : 18.09.91
 Replaces : 6.3.90
 Test oil : ISO-4113
 Combination no. : 0 400 866 129
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV400...1100AOC2190
 -27R
 Governor no. : 0 420 233 225

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 111.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H08

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 9.70...9.80
 Del.quantity cm³/ : 8.8...9.0
 100 s : (8.6...9.2)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.2...1.6
 100 s : (0.9...1.8)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 88.0...90.0
 1000 : (86.0...92.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1235
3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 30...38
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 750
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 96.5...100.5
1000 s: (94.5...102.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915973

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 m
 Edition : 18.09.91
 Replaces : 2.5.89
 Test oil : ISO-4113

Combination no. : 0 400 866 131

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...900A4C2213-2R
 Governor no. : 0 420 233 230

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 154.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 830

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 13.8...14.0

100 s: (13.6...14.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 830

Del.quantity : 138.5...140.5

1000 : (136.5...142.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 12.40
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1030
Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 4.60...4.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3914869

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a65
 Edition : 18.09.91
 Replaces : 28.9.89
 Test oil : ISO-4113

Combination no. : 0 400 866 133

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1250AOC2190
 -29R
 Governor no. : 0 420 233 232

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA-I

1st version kW : 164.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 113.5...115.5

1000 : (111.5...117.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control Lever

position degrees: 41...49

Testing:

1st rack travel in: 10.90
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3915691

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery blocking 12° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k 3
 Edition : 18.09.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 400 866 141

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250AOC2216
 -3R

Governer no. : 0 420 233 238

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3 ltr

1st version kW : 160.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M14

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 12.1...12.3

100 s: (11.9...12.5)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 121.0...123.0

1000 : (119.0...125.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 14.50
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 122.5...126.5
1000 s: (120.5...128.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915979

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a67
 Edition : 18.09.91
 Replaces : 2.5.89
 Test oil : ISO-4113

Combination no. : 0 400 866 144

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100ADC2190
 -34R
 Governor no. : 0 420 233 241

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3 ltr.

1st version kw : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 11.2...11.4
 100 s: (11.0...11.6)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 6.0...6.5
 Del. quantity cm³/ : 1.5...1.9
 100 s: (1.3...2.2)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 112.5...114.5
 1000 : (110.5...116.5)

Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 133.5...137.5
1000 s: (131.5...139.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.50
Del. quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C # 3915956

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a97
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 145AK

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190

Governer no. : 0 420 233 242

Customer-spec. information
 Customer : CDC

Engine : 6 C 8.3 l

1st version kW : 112.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H18

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75):

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 10.7...10.8

100 s: (10.5...11.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 107.5...108.5
 1000 : (105.0...111.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 95...103

Testing:

1st rack travel in: 10.40
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1470
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.30...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 a15
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 238R
 Injection pump
 Pump designation : PES4A95D410RS2685
 EP type number : 0 410 894 996
 Governor
 Governor design. : RSV400...1000A1C2187
 L
 Governor no. : 0 420 232 387

Customer-spec. information
 Customer : LIEBHERR

Engine : D904 NA

1st version kW : 70.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

H2O

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 415.0
 Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 975
 Del.quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:
1st rack travel in: 11.20
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1030...1060
3rd rack travel in: 4.00
Speed rpm : 1070...1090
4th rack travel in: 1230
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 415
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.70...12.90
3rd speed rpm : 800
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 111.5...114.5
1000 s: (109.0...117.0)
Speed rpm : 800
Del.quantity cm³/ : 123.0...126.0
1000 s: (120.5...128.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 6,6 a 2
 Edition : 27.09.91
 Replaces : 3.5.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 321AN
 Injection pump
 Pump designation : PES6A95D32ORS2684
 EP type number : 0 410 896 917
 Governor
 Governor design. : RSV325...1050AOC2178
 -2R
 Governor no. : 0 420 233 178

Customer-spec. information
 Customer : VALMET

Engine : 611D

1st version kW : 147.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 77...85

Testing:

1st rack travel in: 11.20
Speed rpm : 1120...1130
3rd rack travel in: 4.00
Speed rpm : 1160...1185
4th rack travel in: 1310
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 4.2
Speed rpm : 325
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.20...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 114.0...117.0
1000 s: (111.5...119.5)
Speed rpm : 800
Del.quantity cm³/ : 120.0...123.0
1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.70...4.90

Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION :

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 d 8
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 381
 Injection pump
 Pump designation : PES6A100D41ORS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1050A2C2252
 L
 Governor no. : 0 420 232 549

Customer-spec. information

Customer : JOHN DEERE
 Engine : 6076TRW-30
 1st version kw : 129.5
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

H24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.50...11.60
 Del.quantity cm³/ : 11.0...11.2
 100 s: (10.8...11.4)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 2.3...2.7
 100 s: (2.1...3.0)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 110.0...112.0
 1000 : (108.0...114.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 10.50
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1180
3rd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.50...11.60
2nd speed rpm : 700
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del. quantity cm³/ : 132.0...136.0
1000 s: (130.0...138.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 23.5...27.5
1000 s: (21.0...30.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHNE DEERE #RE41833
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

11- 10- 3- 6- 7- 12

Note remarks

Test sheet : KHD 19,2 b2
 Edition : 18.09.91
 Replaces : 11.11.88
 Test oil : ISO-4113
 Combination no. : 0 401 840 763
 Injection pump
 Pump designation : PE12P110A920LS3173
 EP type number : 0 411 810 708
 Governor
 Governor design. : RQ300/1000PA803-1
 Governor no. : 0 421 801 463

Customer spec. information
 Customer : KHD

Engine : BF12L513/C

1st version kW : 342.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 4- 9- 8- 5- 2-

H26

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.90...13.00
 Del. quantity cm³/ : 16.4...16.6
 100 s : (16.1...16.9)
 Spread cm³ : 0.5
 100 s : (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 6.8...7.0
 Del. quantity cm³/ : 1.5...2.1
 100 s : (1.2...2.3)
 Spread cm³ : 0.7
 100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del. quantity : 164.0...166.0
 1000 : (161.0...169.0)
 Spread cm³ : 5.00
 1000 : (8.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 11.90
 Speed rpm : 1035...1050
 2nd rack travel in: 4.00
 Speed rpm : 1105...1135

4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL
Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 650
Rack travel in m: 13.20...13.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1035...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...165.0
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.80...7.00
Del.quantity cm3/ : 15.0...21.0
1000 s: (12.5...23.5)
Spread cm3 : 7.00
1000 s: (10.00)

Remarks:
:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6m16
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 465Z

Injection pump
Pump designation : PE6P100A32ORS384-1Z
EP type number : 0 411 806 189
Governor
Governor design. : RQ225/1000PA571
Governor no. : 0 421 801 141

Cust. part no. : 0660965

Customer-spec. information
Customer : DAF

Engine : DKDL 1160

1st version kW : 125.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0
Rack travel in mm : 7.5...7.7
Del. quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.60

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack trave: 8.40
Speed rpm : 250
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 11.40...11.50
2nd speed rpm : 1000
Rack travel in m: 10.60...10.80
3rd speed rpm : 820
Rack travel in m: 11.20...11.40
4th speed rpm : 900
Rack travel in m: 10.80...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 93.0...97.0
1000 s: (90.5...99.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...220.0
1000 s: (176.0...224.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

J01

Rack travel in mm : 7.50...7.70
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 s4
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 466Y

Injection pump
 Pump designation : PE6P100A32ORS384-1Y
 EP type number : 0 411 806 189
 Governor
 Governor design. : RQ225/1100PA574
 Governor no. : 0 421 801 142

Cust. part no. : 0660969

Customer-spec. information
 Customer : DAF

Engine : DKL 1160

1st version kW : 151.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 11.0...11.2
 100 s : (10.8...11.4)

Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 225.0
 Rack travel in mm : 7.2...7.4
 Del.quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Del.quantity : 110.5...112.5
 1000 : (108.5...114.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 16.0

Testing:
 1st rack travel in: 9.80
 Speed rpm : 1140...1155
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 7.3

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 225
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 325...365

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 11.50...11.60
2nd speed rpm : 1050
Rack travel in m: 10.80...11.00
3rd speed rpm : 800
Rack travel in m: 11.20...11.40
4th speed rpm : 855
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1050
Del.quantity cm3/ : 107.0...111.0
1000 s: (104.5...113.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 195.0...235.0
1000 s: (191.0...239.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225

J03

Rack travel in mm : 7.20...7.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6 s5
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 466Z
 Injection pump
 Pump designation : PE6P100A32ORS384-1Z
 EP type number : 0 411 806 189
 Governor
 Governor design. : RQ225/1100PA574
 Governor no. : 0 421 801 142

Cust. part no. : 0660976

Customer-spec. information
 Customer : DAF

Engine : DKL 1160

1st version kW : 151.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 11.0...11.2

100 s : (10.8...11.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 225.0

Rack travel in mm : 7.2...7.4

Del.quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Del.quantity : 110.5...112.5

1000 : (108.5...114.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.80

Speed rpm : 1140...1155

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 7.3

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 225
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 325...365

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 11.50...11.60
2nd speed rpm : 1050
Rack travel in m: 10.80...11.00
3rd speed rpm : 800
Rack travel in m: 11.20...11.40
4th speed rpm : 855
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1050
Del.quantity cm3/ : 107.0...111.0
1000 s: (104.5...113.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 195.0...235.0
1000 s: (191.0...239.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225

J05

Rack travel in mm : 7.20...7.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6n10
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 469X

Injection pump
 Pump designation : PE6P110A32ORS407-1X
 EP type number : 0 411 816 147
 Governor
 Governor design. : RQ250/1100PA428/2R
 Governor no. : 0 421 801 093

Cust. part no. : 0279913

Customer spec. information
 Customer : DAF

Engine : DKTL1160

1st version kw : 185.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 14.1...14.3

100 s : (13.8...14.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm³/ : 2.3...2.7

100 s : (2.0...2.9)

Spread cm³ : 0.4

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 141.0...143.0

1000 : (138.5...145.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.30

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 6.20...6.50

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.30...12.40
2nd speed rpm : 1100
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.50...10.60
2nd pressure hPa : 130
Rack travel in m: 11.80...11.90
3rd pressure hPa : 90
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 102.0...104.0
1000 s: (99.5...106.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1160

J07

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 245.0...285.0
1000 s: (241.0...289.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.20...6.50

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6n11
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 469Z
Injection pump
Pump designation : PE6P110A32ORS407-1Z
EP type number : 0 411 816 147
Governor
Governor design. : RQ250/1100PA428/2R
Governor no. : 0 421 801 093

Cust. part no. : 0659868

Customer-spec. information
Customer : DAF

Engine : DKTL1160

1st version kW : 185.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 14.1...14.3

100 s: (13.8...14.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm3/ : 2.3...2.7

100 s: (2.0...2.9)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 141.0...143.0

1000 : (138.5...145.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.30

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:

Speed rpm : 100
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 7.60...7.80
Rack travel in mm : 2.00
Speed rpm : 375...415

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.30...12.40
2nd speed rpm : 1100
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.00...12.10
2nd pressure hPa : 300
Rack travel in m: 12.10...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 137.0...139.0
1000 s: (134.5...141.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 245.0...285.0
1000 s: (241.0...289.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.60...7.80
Del.quantity cm3/ : 23.0...27.0
1000 s: (20.5...29.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 m
Edition : 18.09.91
Replaces : 21.6.91
Test oil : ISO-4113
Combination no. : 0 401 846 566
Injection pump
Pump designation : PE6P110A32ORS526
FP type number : 0 411 816 178
Governor
Governor design. : RQ275/1000PA818-3
Governor no. : 0 421 801 534

Customer-spec. information
Customer : DAF

Engine : LT 160 G

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 0 681 343 009
Opening pressure, bar : 172...175
Test lines : 1 680 750 015
Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 13.00...14.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
& maximum rack tra: 13.0...14.0
Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 600
Rack travel in mm : 14.20...14.30
Del.quantity cm3/ : 15.6...15.8
100 s: (15.3...16.0)
Spread cm3 : 0.4
100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm3/ : 2.5...3.0
100 s: (2.3...3.3)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 156.0...158.0
1000 : (153.5...160.5)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 15.8
Testing:
1st rack travel in: 12.40
Speed rpm : 1030...1045
2nd rack travel in: 4.00

Speed rpm : 1090...1120
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack travel: 10.70
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 3.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.40...13.60
2nd speed rpm : 600
Rack travel in m: 14.40...14.60
3rd speed rpm : 750
Rack travel in m: 14.00...14.10
4th speed rpm : 825
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 12.70...12.90
2nd pressure hPa : 290
Rack travel in m: 13.80...13.90
3rd pressure hPa : 260
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 980
Del.quantity cm³/ : 136.0...138.0
1000 s: (132.0...142.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 122.0...124.0
1000 s: (119.5...126.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1030...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 280.0...320.0
1000 s: (276.0...324.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 25.5...30.5
1000 s: (23.0...33.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 g
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 570

Injection pump
 Pump designation : PE6P110A320RS494
 EP type number : 0 411 816 162
 Governor
 Governor design. : RQV300...1100PA232-6
 Governor no. : 0 421 813 978

Customer-spec. information
 Customer : VME

Engine : TD 71G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.3...4.5

Del. quantity cm³/ : 1.2...1.6

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.70

2nd speed rpm : 450
 travel mm : 2.40...3.00

3rd speed rpm : 700
 travel mm : 4.30...4.90

4th speed rpm : 1150
 travel mm : 8.30...8.50

5th speed rpm : 1250
 travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del. quantity : 122.0...124.0

1000 : (120.0...126.0)

Spread cm³ : 4.50

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 102...110

Testing:
1st rack travel in: 10.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 300
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION
Speed rpm : 300...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 270
Rack travel in m: 10.10...10.20
3rd pressure hPa : 470
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 87.0...89.0
1000 s: (84.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...185.0
1000 s: (151.0...189.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.30...4.50
Del.quantity cm³/ : 12.0...16.0
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p13
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 899Z
 Injection pump
 Pump designation : PE6P110A720RS3225Z
 EP type number : 0 411 816 763
 Governor
 Governor design. : RQ275/1200PA913-1
 Governor no. : 0 421 801 549

Customer-spec. information
 Customer : DAF

Engine : HS 206

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.50...12.60
 Del.quantity cm3/ : 12.4...12.6
 100 s : (12.1...12.8)
 Spread cm3 : 0.4
 100 s : (0.7)

2nd speed rpm : 250.0
 Rack travel in mm : 7.2...7.4
 Del.quantity cm3/ : 1.4...1.9
 100 s : (1.1...2.1)
 Spread cm3 : 0.4
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 124.0...126.0
 1000 : (121.5...128.5)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 11.50
 Speed rpm : 1260...1275
 2nd rack travel in: 4.00
 Speed rpm : 1350...1380
 4th rack travel in: 1475
 Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250
Rack travel in mm : 5.3

Rack travel in mm : 5.20...5.40

Remarks:

Testing:

Speed rpm : 100
Minimum rack trave: 6.80
Speed rpm : 250
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.80...12.90
2nd speed rpm : 1200
Rack travel in m: 12.70...12.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.10
2nd pressure hPa : 360
Rack travel in m: 12.10...12.20
3rd pressure hPa : 270
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm3/ : 87.0...89.0
1000 s: (84.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1260...1275

LOW IDLE

Speed rpm : 250

J15

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 y6
 Edition : 23.08.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 908
 Injection pump
 Pump designation : PE6P110A720RS3115-1
 EP type number : 0 411 816 764
 Governor
 Governor design. : RQV250...1100PA468
 Governor no. : 0 421 813 225

Customer-spec. information
 Customer : SCANIA

Engine : DN11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm³ : 0.5

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.5...4.8

Del. quantity cm³/ : 1.2...1.6

Spread cm³ : 0.2
 100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.20...1.60

2nd speed rpm : 350
 travel mm : 2.40...3.00

3rd speed rpm : 650
 travel mm : 4.60...5.20

4th speed rpm : 1145
 travel mm : 8.60...8.80

5th speed rpm : 1255
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm³ : 5.00

1000 : (7.00)

RATED SPEED

1st version

Control Lever
position degrees: 113...121

Testing:
1st rack travel in: 10.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 250
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 360...420

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del. quantity cm³/ : 113.5...118.5
1000 s: (111.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.50...4.70

Remarks:

Delivery valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on June 4, 1991

Start of delivery - engine: 21° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,2 b 1
 Edition : 18.09.91
 Replaces : 20.12.90
 Test oil : ISO-4113

Combination no. : 0 401 846 932

Injection pump
 Pump designation : PE6P120A320RS3183-3
 EP type number : 0 411 826 794
 Governor
 Governor design. : RQ275/1100PA832-4
 Governor no. : 0 421 801 537

Customer-spec. information
 Customer : DAF

Engine : KS 260 S

1st version kW : 260.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 21.1...21.3
 100 s: (20.8...21.6)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 2.2...2.8
 100 s: (1.9...3.1)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 1000
 Del.quantity : 211.0...213.0
 1000 : (208.0...216.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 11.70
 Speed rpm : 1125...1140
 2nd rack travel in: 4.00

Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 275
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 13.70...13.80
2nd speed rpm : 1100
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 510
Rack travel in m: 12.10...12.20
3rd pressure hPa : 360
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 150.0...152.0
1000 s: (147.0...155.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1125...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...300.0
1000 s: (256.0...304.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 22.5...28.5
1000 s: (19.5...31.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEG 10,5 a
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 947
 Injection pump
 Pump designation : PE6P110A720LS3283
 EP type number : 0 411 816 180
 Governor
 Governor design. : RQV250...1000PA1011
 Governor no. : 0 421 813 937

Customer-spec. information
 Customer : IVECO-PEGASO

Engine : 95 T1 GX

1st version kW : 165.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 17.2...17.4

100 s : (16.9...17.7)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.8...2.2

100 s : (1.6...2.4)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 400
 travel mm : 2.20...2.80

3rd speed rpm : 650
 travel mm : 4.50...5.10

4th speed rpm : 1050
 travel mm : 8.50...8.70

5th speed rpm : 1140
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 172.0...174.0

1000 : (169.0...177.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 9.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 250
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 250...480

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.30
2nd pressure hPa : 520
Rack travel in m: 10.10...10.20
3rd pressure hPa : 310
Rack travel in m: 8.80...9.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 980
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 117.0...119.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...6.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 d2
 Edition : 18.09.91
 Replaces : 26.7.91
 Test oil : ISO-4113

Combination no. : 0 401 846 949

Injection pump
 Pump designation : PE6P120A32ORS3240
 EP type number : 0 411 826 786
 Governor
 Governor design. : RQV250...1025PA921
 -22

Governer no. : 0 421 813 942

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD122FA

1st version kW : 291.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 25.1...25.3

100 s: (24.8...25.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 800
 travel mm : 6.30...6.70

4th speed rpm : 1070
 travel mm : 8.00...8.20

5th speed rpm : 1180
 travel mm : 9.90...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1500
Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 12.60
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:

Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 90
Rack travel in m: 9.30...9.40
3rd pressure hPa : 960
Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 136.0...138.0
1000 s: (133.0...141.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with RO80
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p11
 Edition : 23.10.91
 Replaces : 26.7.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 953
 Injection pump
 Pump designation : PE6P110A72ORS3225Z
 EP type number : 0 411 816 782
 Governor
 Governor design. : RQ275/1200PA913-1
 Governor no. : 0 421 801 549

Customer-spec. information
 Customer : DAF

Engine : HS 200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.70...12.80
 Del.quantity cm3/ : 12.9...13.1
 100 s : (12.6...13.3)
 Spread cm3 : 0.4
 100 s : (0.7)
 2nd speed rpm : 275.0
 Rack travel in mm : 7.2...7.4
 Del.quantity cm3/ : 1.4...1.9
 100 s : (1.1...2.1)
 Spread cm3 : 0.4
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 129.0...131.0
 1000 : (126.5...133.5)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 11.70
 Speed rpm : 1235...1250
 2nd rack travel in: 4.00
 Speed rpm : 1320...1350
 4th rack travel in: 1450
 Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275
Rack travel in mm : 4.8

Rack travel in mm : 4.70...4.90

Remarks:

Testing:

Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.70...13.80
2nd speed rpm : 1200
Rack travel in m: 13.60...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 360

Rack travel in m: 12.10...12.20

3rd pressure hPa : 270

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm³/ : 87.0...89.0

1000 s: (84.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 275

J25

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p12
 Edition : 18.09.91
 Replaces : 26.7.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 954
 Injection pump
 Pump designation : PE6P110A72GRS3225Z
 EP type number : 0 411 816 782
 Governor
 Governor design. : RQV275...1200PA910
 Governor no. : 0 421 813 746

Customer-spec. information
 Customer : DAF

Engine : HS 200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.90...13.00
 Del. quantity cm³/ : 12.9...13.1
 100 s: (12.6...13.3)
 Spread cm³ : 0.4
 100 s: (0.7)
 2nd speed rpm : 275.0
 Rack travel in mm : 7.2...7.4
 Del. quantity cm³/ : 1.4...1.9
 100 s: (1.1...2.1)
 Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 450
 travel mm : 2.90...3.30
 3rd speed rpm : 800
 travel mm : 4.70...5.10
 4th speed rpm : 1200
 travel mm : 7.80...8.00
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1235
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del. quantity : 129.0...131.0
 1000 : (126.5...133.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.90
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1350...1380
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 275
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION
Speed rpm : 280...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.00
2nd pressure hPa : 360
Rack travel in m: 12.30...12.40
3rd pressure hPa : 270
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 87.0...89.0
1000 s: (84.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90

Speed rpm : 1240...1250

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 i
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 958
 Injection pump
 Pump designation : PE6P120A72ORS3291
 EP type number : 0 411 826 800
 Governor
 Governor design. : RQV300...1000PA1016
 Governor no. : 0 421 813 964

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8210.22.521

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm³/ : 1.9...2.5

100 s: (1.6...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 7.70...7.90
 2nd speed rpm : 300
 travel mm : 1.10...1.50
 3rd speed rpm : 450
 travel mm : 2.40...3.00
 4th speed rpm : 700
 travel mm : 4.30...4.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1145
 Rack travel in mm : 9.70...12.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 225.0...227.0
 1000 : (222.0...230.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 11.00
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 55...63

Testing:
Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 300...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.00...12.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 220
Rack travel in m: 11.30...11.40
3rd pressure hPa : 180
Rack travel in m: 10.40...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 500
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 155.0...157.0
1000 s: (152.0...160.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 215.0...235.0
1000 s: (211.0...239.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm3/ : 19.0...25.0
1000 s: (16.0...28.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 k
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 961
 Injection pump
 Pump designation : PE6P120A32ORS3292
 EP type number : 0 411 826 804
 Governor
 Governor design. : RQV300...1050PA1020
 Governor no. : 0 421 813 976

Customer-spec. information
 Customer : VME

Engine : TD122 GH 3049

1st version kW : 207.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 3.9...4.1
 Del. quantity cm³/ : 1.3...1.8
 100 s: (1.1...2.1)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.70
 2nd speed rpm : 450
 travel mm : 2.40...3.00
 3rd speed rpm : 700
 travel mm : 4.30...4.90
 4th speed rpm : 1100
 travel mm : 7.80...8.00
 5th speed rpm : 1200
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 1200

Del. quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Testing:
1st rack travel in: 10.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 100
Minimum rack travel: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 300...370

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.40...11.50
2nd speed rpm : 550
Rack travel in m: 12.40...12.60
3rd speed rpm : 650
Rack travel in m: 12.20...12.40
4th speed rpm : 750
Rack travel in m: 11.60...11.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 1200
Rack travel mm : 12.40...12.60

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 90

K03

Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 550
Del. quantity cm³/ : 227.0...233.0
1000 s: (224.0...236.0)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 178.0...180.0
1000 s: (175.0...183.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del. quantity cm³/ : 13.5...18.5
1000 s: (11.0...21.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 c 3
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 712A
 Injection pump
 Pump designation : PE8P110A320LS3802-10
 EP type number : 0 411 818 710
 Governor
 Governor design. : RQV300...1150PA524-2
 Governor no. : 0 421 813 264

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM422

1st version kW : 206.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...0

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 750
 Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 11.4...11.6
 100 s: (11.1...11.8)

Spread cm3 : 0.4
 100 s: (-)

2nd speed rpm : 300.0
 Rack travel in mm : 7.9...8.1
 Del.quantity cm3/ : 1.5...2.1
 100 s: (1.2...2.3)
 Spread cm3 : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.50...2.00
 2nd speed rpm : 900
 travel mm : 6.40...6.90
 3rd speed rpm : 1206
 travel mm : 8.30...8.80
 4th speed rpm : 1302
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1190
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del.quantity : 114.0...116.0
 1000 : (111.5...118.5)

Spread cm³ : 4.00
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 10.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 100
Minimum rack trave: 9.60
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 430...490

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150
Del.quantity cm³/ : 132.0...137.0
1000 s: (129.0...140.0)
Spread cm³ : 7.00
1000 s: (10.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 d
 Edition : 27.09.91
 Replaces : 16.12.88
 Test oil : ISO-4113

Combination no. : 0 401 848 757

Injection pump
 Pump designation : PE8P120A920/5LS3827
 EP type number : 0 411 828 712
 Governor
 Governor design. : RQV300...900PA475-1
 Governor no. : 0 421 813 420

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8280.22.201

1st version kW : 309.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 21.2...21.4
 100 s: (20.9...21.7)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.0...5.2
 Del. quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)

Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.40...1.80
 2nd speed rpm : 450
 travel mm : 3.60...4.00
 3rd speed rpm : 750
 travel mm : 6.10...6.50
 4th speed rpm : 900
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 960
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 900

Del.quantity : 212.0...214.0
1000 : (209.0...217.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 11.60
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack trave: 6.40
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION
Speed rpm : 310...415

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.90
2nd pressure hPa : 440
Rack travel in m: 11.60...11.70
3rd pressure hPa : 340
Rack travel in m: 9.60...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 550
Del.quantity cm3/ : 232.0...240.0
1000 s: (229.0...243.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...200.0
1000 s: (166.0...204.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d 8
 Edition : 08.10.91
 Replaces : 12.1.90
 Test oil : ISO-4113

Combination no. : 0 401 848 804

Injection pump
 Pump designation : PE8P110A320LS3842-1
 EP type number : 0 411 818 716
 Governor
 Governor design. : RGV350...1050PA378-7
 Governor no. : 0 421 813 714

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 13.7...13.9

100 s: (13.4...14.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 8.0...8.3
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.2...2.3)
 Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.50...1.70
 2nd speed rpm : 800
 travel mm : 4.90...5.30
 3rd speed rpm : 1100
 travel mm : 7.90...8.50
 4th speed rpm : 1150
 travel mm : 8.90...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1110
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 137.0...139.0
 1000 : (134.5...141.5)

Spread cm3 : 4.00
1000 : (7.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 250
Minimum rack trave: 9.50
Speed rpm : 350
Rack travel in mm : 8.00...8.30

CONSTANT REGULATION
Speed rpm : 350...450

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 124.0...128.0
1000 s: (121.0...131.0)
Spread cm3 : 5.00
1000 s: (8.0)
Speed rpm : 1050
Del.quantity cm3/ : 87.0...89.0 *
1000 s: (84.0...92.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,8 c
 Edition : 23.10.91
 Replaces : 26.7.91
 Test oil : ISO-4113

Combination no. : 0 401 848 820

Injection pump
 Pump designation : PE8P120A920/5LS3281
 EP type number : 0 411 828 724
 Governor
 Governor design. : RQV300...1050PA1009
 Governor no. : 0 421 813 938

Customer-spec. information
 Customer : KHD

Engine : BF8L513LC

1st version kw : 243.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 8- 7- 2- 6- 5-
 : 4- 3

Phasing : 0-45-90-135-180-225-
 : 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.30...13.40

Del. quantity cm³/ : 18.6...18.8
 100 s: (18.3...19.1)

Spread cm³ : 0.6
 100 s: (1.0)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 3.0...3.6
 100 s: (2.7...3.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 2.40...2.80
 2nd speed rpm : 450
 travel mm : 3.40...4.00
 3rd speed rpm : 725
 travel mm : 5.30...5.90
 4th speed rpm : 1100
 travel mm : 9.10...9.30
 5th speed rpm : 1175
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1070
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Aneroid pressure h: 750
Del.quantity : 186.0...188.0
1000 : (183.0...191.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 86...94

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 210...260

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.70...12.80
2nd speed rpm : 650
Rack travel in m: 13.00...13.20
3rd speed rpm : 805
Rack travel in m: 12.70...12.90

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 13.30...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...12.00
2nd pressure hPa : 450
Rack travel in m: 13.00...13.10

K11

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750
Speed rpm : 650
Del.quantity cm³/ : 186.0...190.0
1000 s: (183.0...193.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 175.0...195.0
1000 s: (-)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 b7
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 821
 Injection pump
 Pump designation : PE8P120A920/5LS3804
 EP type number : 0 411 828 705
 Governor
 Governor design. : RGV300...1000PA475-2
 Governor no. : 0 421 813 949

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8285.22.004

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test Lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 11.10...11.20
 Del.quantity cm³/ : 18.5...18.7
 100 s : (18.2...19.0)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.1...5.5
 Del.quantity cm³/ : 2.1...2.7
 100 s : (1.8...3.0)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1055
 travel mm : 8.30...8.50
 2nd speed rpm : 300
 travel mm : 1.00...1.40
 3rd speed rpm : 500
 travel mm : 3.70...4.30
 4th speed rpm : 700
 travel mm : 5.30...5.70
 5th speed rpm : 1350
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1170
 Rack travel in mm : 8.80...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 185.0...187.0
 1000 : (182.0...190.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 10.10
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 320...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 340
Rack travel in m: 10.50...10.60
3rd pressure hPa : 280
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 137.0...139.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.50
Del.quantity cm3/ : 21.0...27.0
1000 s: (18.0...30.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 g
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 822
 Injection pump
 Pump designation : PE8P120A920/5LS3857
 EP type number : 0 411 828 725
 Governor
 Governor design. : RGV250...1200PA357
 Governor no. : 0 421 813 188

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8280.02.412

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.85...2.95
 : (2.85...3.00)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 8.60...8.70
 Del.quantity cm3/ : 14.1...14.3
 100 s : (13.8...14.6)
 Spread cm3 : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 4.8...5.2
 Del.quantity cm3/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm3 : 0.8
 100 s : (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1295
 travel mm : 9.10...9.30
 2nd speed rpm : 250
 travel mm : 0.70...1.10
 3rd speed rpm : 500
 travel mm : 3.30...3.90
 4th speed rpm : 800
 travel mm : 5.10...5.50
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1370
 Rack travel in mm : 6.30...8.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 141.0...143.0
 1000 : (138.0...146.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 7.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 310...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm3/ : 139.0...145.0
1000 s: (136.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.20
Del. quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)

Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 0 9
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 849 749
 Injection pump
 Pump designation : PE10P110A920/5LS3164
 EP type number : 0 411 819 708
 Governor
 Governor design. : RQV300....900PA790-2
 Governor no. : 0 421 813 843

Customer-spec. information
 Customer : KHD

Engine : BF10L513 ECE

1st version kW : 218.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

K16

Firing order : 1- 10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del. quantity cm³/ : 12.1...12.3

100 s : (11.8...12.6)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 1.2...1.8

100 s : (0.9...2.1)

Spread cm³ : 0.4

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 2.70...3.20

3rd speed rpm : 700
 travel mm : 5.20...5.70

4th speed rpm : 950
 travel mm : 9.00...9.20

5th speed rpm : 1000
 travel mm : 9.90...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 920

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 121.0...123.0

1000 : (118.0...126.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 10.60
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...500

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 650
Rack travel in m: 11.80...12.00
2nd speed rpm : 900
Rack travel in m: 11.60...11.70
3rd speed rpm : 850
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 940...950

K17

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

Remarks:

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 16,0 d6
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 849 750
 Injection pump
 Pump designation : PE10P110A920/5LS3164
 EP type number : 0 411 819 708
 Governor
 Governor design. : RQV300...1150PA549-5
 Governor no. : 0 421 813 844

Customer-spec. information
 Customer : KHD

Engine : BF10L513 ECE

1st version kw : 294.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

K18

Firing order : 1- 10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.2...1.7

100 s: (1.0...2.0)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 2.70...3.20

3rd speed rpm : 800
 travel mm : 5.10...5.60

4th speed rpm : 1200
 travel mm : 8.40...8.60

5th speed rpm : 1320
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200

Del.quantity : 153.0...155.0

1000 : (150.0...158.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 82...90

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.60
2nd pressure hPa : 660
Rack travel in m: 12.75...12.85
3rd pressure hPa : 450
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 117.0...119.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 12.5...17.5
1000 s: (10.0...20.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 10,0 b1
Edition : 18.01.91
Replaces : 5.84
Test oil : ISO-4113
Combination no. : 0 401 856 143
Injection pump
Pump designation : PE6P110A721RS369
EP type number : 0 411 816 121
Governor
Governor design. : RQV250...1300PA413DR
Governor no. : 0 421 815 150

Customer-spec. information
Customer : STEYR

Engine : WDWD615.60

1st version kW : 191.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 12.3...12.5

100 s: (12.0...12.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 9.2...9.4

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.6)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 123.0...125.0

1000 : (120.0...128.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 11.70

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1435...1465

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack trave: 10.40
Speed rpm : 250
Rack travel in mm : 9.20...9.40
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.30...13.50
3rd speed rpm : 900
Rack travel in m: 13.00...13.20
4th speed rpm : 1100
Rack travel in m: 12.80...13.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 310
Rack travel in m: 13.10...13.20
3rd pressure hPa : 290
Rack travel in m: 12.90...13.10

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 114.0...116.0
1000 s: (111.0...119.0)
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 98.0...100.0
1000 s: (95.0...103.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...135.0
1000 s: (-)
Rack travel in mm : 16.00...16.50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6k27
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 310M

Injection pump
Pump designation : PE6P120A320RS372-1M
EP type number : 0 411 826 121
Governor
Governor design. : RSV250...1100P5A508-
2
Governor no. : 0 421 833 195

Cust. part no. : 1224023

Customer-spec. information
Customer : DAF

Engine : DKXD1160

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 16.7...16.9
100 s: (16.4...17.2)

Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 6.7...6.9
Del.quantity cm³/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Aneroid pressure h: 700
Del.quantity : 167.0...169.0
1000 : (164.0...172.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 100...108

Testing:
1st rack travel in: 9.90
Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1195...1225
3rd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1425
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0
Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 620...680

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 11.10...11.20
2nd speed rpm : 400
Rack travel in m: 11.10...11.30
3rd speed rpm : 300
Rack travel in m: 11.40...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 270
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 300.0...340.0
1000 s: (296.0...344.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6k28
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 310R

Injection pump
 Pump designation : PE6P120A320RS372-1R
 EP type number : 0 411 826 121
 Governor
 Governor design. : RSV250...1100P5A508-
 2
 Governor no. : 0 421 833 195

Cust. part no. : 0080570

Customer-spec. information
 Customer : DAF

Engine : DKXD 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 17.2...17.4
 100 s : (16.9...17.7)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.4...2.0
 100 s : (1.1...2.3)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h : 700
 Del. quantity : 172.0...174.0
 1000 : (169.0...177.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 10.00
 Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1195...1225
3rd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1425
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 620...680

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 11.30...11.40
2nd speed rpm : 400
Rack travel in m: 11.10...11.30
3rd speed rpm : 300
Rack travel in m: 11.40...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 270
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 300.0...340.0
1000 s: (296.0...344.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 f3
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 338Z

Injection pump
 Pump designation : PE6P120A32ORS415-1Z
 EP type number : 0 411 826 123
 Governor
 Governor design. : RSV250...1100P5A508-
 9
 Governor no. : 0 421 833 321

Cust. part no. : 1206507

Customer-spec. information
 Customer : DAF

Engine : KS 238 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 19.1...19.3
 100 s : (18.8...19.6)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 7.3...7.5
 Del.quantity cm³/ : 3.6...4.2
 100 s : (3.3...3.9)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h : 700
 Del.quantity : 191.0...193.0
 1000 : (188.0...196.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: ?

Testing:
 1st rack travel in: 10.20
 Speed rpm : 1120...1130

2nd rack travel in: 4.00
Speed rpm : 1175...1205
3rd rack travel in: 4.00
Speed rpm : 1255...1275
4th rack travel in: 1405
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: ?
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.9
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 600...700

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1090
Rack travel in m: 11.20...11.40
2nd speed rpm : 650
Rack travel in m: 12.30...12.40
3rd speed rpm : 690
Rack travel in m: 12.10...12.20
4th speed rpm : 760
Rack travel in m: 11.50...11.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 340
Rack travel in m: 11.40...11.50
3rd pressure hPa : 210
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1090
Del.quantity cm³/ : 185.0...187.0
1000 s: (182.0...190.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 128.5...130.5
1000 s: (125.5...133.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 300.0...340.0
1000 s: (296.0...344.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm³/ : 36.0...42.0
1000 s: (33.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 o17
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 342Z

Injection pump
Pump designation : PE6P100A720RS447-1Z
EP type number : 0 411 806 195
Governor
Governor design. : RSV250...750P7A507-2
Governor no. : 0 421 833 353

Cust. part no. : 0763394

Customer-spec. information
Customer : DAF

Engine : DHT 825 A(1800)

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 14.2...14.4

100 s : (14.0...14.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 11.70

Speed rpm : 900...905

2nd rack travel in: 4.00

Speed rpm : 940...955

4th rack travel in: 1100

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 65...73

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.4

Speed rpm : 250

Rack travel in mm : 5.30...5.50

Rack travel in mm : 2.00

Speed rpm : 260...300

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.30...5.50

Del.quantity cm³/ : 9.0...13.0

1000 s: (6.5...15.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b2
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343K
 Injection pump
 Pump designation : PE6P120A32ORS500K
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763426

Customer-spec. information
 Customer : DAF

Engine : DKZ1160ATIM-1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 235.0...237.0
 1000 : (232.0...240.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 12.60
 Speed rpm : 895...900
 2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b3
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343L
 Injection pump
 Pump designation : PE6P120A32DRS500L
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763425

Customer-spec. information
 Customer : DAF

Engine : DKZ1160ATiA-1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.50...13.60
 Del.quantity cm³/ : 23.1...23.3
 100 s: (22.8...23.6)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 231.0...233.0
 1000 : (228.0...236.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 12.50
 Speed rpm : 895...900
 2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b4
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 343M
Injection pump
Pump designation : PE6P120A32ORS500M
EP type number : 0 411 826 140
Governor
Governor design. : RSV250...750P7A507-3
Governor no. : 0 421 833 358

Cust. part no. : 0763422

Customer-spec. information
Customer : DAF

Engine : DKXD116QATiA1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 18.9...19.1

100 s: (18.6...19.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 189.0...191.0

1000 : (186.0...194.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 10.80

Speed rpm : 895...900

2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b5
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343N
 Injection pump
 Pump designation : PE6P120A32ORS500N
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763421

Customer-spec. information
 Customer : DAF

Engine : DKXD1160ATiA1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 18.9...19.1

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 189.0...191.0

1000 : (168.5...176.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.80

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b6
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 343P
Injection pump
Pump designation : PE6P120A32ORS500P
EP type number : 0 411 826 140
Governor
Governor design. : RSV250...750P7A507-3
Governor no. : 0 421 833 358

Cust. part no. : 0763416

Customer-spec. information
Customer : DAF

Engine : DKX1160ATiA-1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 20.4...20.6

100 s: (20.1...20.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 11.40

Speed rpm : 895...900

2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b7
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343R
 Injection pump
 Pump designation : PE6P120A320RS500R
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763414

Customer-spec. information
 Customer : DAF

Engine : DKX1160ATIM-1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.60...12.70
 Del. quantity cm³/ : 20.8...21.0
 100 s: (20.5...21.3)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 208.0...210.0
 1000 : (205.0...213.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 11.60
 Speed rpm : 895...900
 2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b8
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 343S
Injection pump
Pump designation : PE6P120A320RS500S
EP type number : 0 411 826 140
Governor
Governor design. : RSV250...75CP7A507-3
Governor no. : 0 421 833 358

Cust. part no. : 0763413

Customer-spec. information
Customer : DAF

Engine : DKX1160ATiA-1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Timing : 0-60-120-180-240-300
Tolerance ± ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 21.7...21.9
100 s : (21.4...22.2)

Spread cm³ : 0.5
100 s : (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 6.7...6.9
Del. quantity cm³ : 1.4...2.0
100 s : (1.1...2.3)
Spread cm³ : 0.8
100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Testing:
1st rack travel in: 11.90
Speed rpm : 750...755
2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

APPLICATION :

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b9
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343T
 Injection pump
 Pump designation : PE6P120A320RS500T
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763412

Customer-spec. information
 Customer : DAF

Engine : DKVD1160ATI-1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.80...9.90

Del.quantity cm³/ : 14.1...14.3

100 s: (13.8...14.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 141.0...143.0

1000 : (138.0...146.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 8.80

Speed rpm : 895...900

2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7b10
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343U
 Injection pump
 Pump designation : PE6P120A320RS500U
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763411

Customer spec. information
 Customer : DAF

Engine : DKVD1160ATI1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.10...10.20
 Del. quantity cm³/ : 14.7...14.9
 100 s: (14.4...15.2)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 147.5...149.5
 1000 : (144.5...152.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:
 1st rack travel in: 9.10
 Speed rpm : 750...755
 2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7b11
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343V
 Injection pump
 Pump designation : PE6P120A32ORS500V
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763408

Customer-spec. information
 Customer : DAF

Engine : DKVD1160ATIM1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 9.90...10.00
 Del. quantity cm³/ : 14.3...14.5
 100 s : (14.0...14.8)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.4...2.0
 100 s : (1.1...2.3)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 143.5...145.5
 1000 : (140.5...148.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 8.90
 Speed rpm : 895...900
 2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7b12
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343W
 Injection pump
 Pump designation : PE6P120A32ORS500W
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763407

Customer-spec. information
 Customer : DAF

Engine : DKVD1160ATIM1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.20...10.30
 Del.quantity cm3/ : 15.0...15.2
 100 s : (14.7...15.5)
 Spread cm3 : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm3/ : 1.4...2.0
 100 s : (1.1...2.3)
 Spread cm3 : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 150.5...152.5
 1000 : (147.5...155.5)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control Lever
 position degrees: 90...98

Testing:
 1st rack travel in: 9.20
 Speed rpm : 750...755
 2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7b13
Edition : 27.09.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 343X

Injection pump
Pump designation : PE6P120A32ORS500X
EP type number : 0 411 826 140
Governor
Governor design. : RSV250...750P7A507-3
Governor no. : 0 421 833 358

Cust. part no. : 0763406

Customer-spec. information
Customer : DAF

Engine : DKV1160ATiA-1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 168.5...170.5

1000 : (165.5...173.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 9.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

APPLICATION :

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7b14
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343Y
 Injection pump
 Pump designation : PE6P120A32ORS500Y
 EP type number : 0 411 826 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763403

Customer-spec. information
 Customer : DAF

Engine : DKV1160ATI1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.90...11.00
 Del.quantity cm³/ : 16.8...17.0
 100 s: (16.5...17.3)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 168.5...170.5
 1000 : (165.5...173.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 9.90
 Speed rpm : 895...900
 2nd rack travel in: 4.00

Speed rpm : 935...950
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 895...900

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7015
 Edi on : 27.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 343Z
 Injection pump
 Pump designation : PE6P120A32ORS500Z
 EP type number : 0 411 926 140
 Governor
 Governor design. : RSV250...750P7A507-3
 Governor no. : 0 421 833 358

Cust. part no. : 0763402

Customer-spec. information
 Customer : DAF

Engine : DKV1160ATIM-1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 68 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 17.1...17.3

100 s : (16.8...17.6)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.4...2.0
 100 s : (1.1...2.3)

Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 171.5...173.5

1000 : (168.5...176.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.8
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6024
 Edition : 18.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 344

Injection pump
 Pump designation : PE6P120A320RS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RSV250...1100P5A508-11
 Governor no. : 0 421 833 367

Customer-spec. information
 Customer : DAF

Engine : KT 200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

M02

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 16.0...16.2
 100 s : (15.7...16.5)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 1.4...2.0
 100 s : (1.1...2.3)

Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 700
 Del.quantity : 160.0...162.0
 1000 : (157.0...165.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 95...103

Testing:
 1st rack travel in: 9.30
 Speed rpm : 1125...1135
 2nd rack travel in: 4.00
 Speed rpm : 1165...1195

3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1375
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6
Speed rpm : 250
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 580...680

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 400
Rack travel in m: 11.30...11.50
2nd speed rpm : 300
Rack travel in m: 11.60...12.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 180
Rack travel in m: 10.10...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 132.5...134.5
1000 s: (129.5...137.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.30
Speed rpm : 1125...1135

STARTING FUEL DELIVERY

M03

Speed rpm : 100
Del.quantity cm³/ : 310.0...350.0
1000 s: (306.0...354.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 d
Edition : 23.10.91
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 876 749

Injection pump
Pump designation : PE6P120A32ORS3163
EP type number : 0 411 826 750
Governor
Governor design. : RSV250...1250POA374
Governor no. : 0 421 833 222

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TAMD 71 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
Rack travel in mm : 9.00...12.00

MO4

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 21.6...21.8

100 s: (21.3...22.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.0...4.2

Del. quantity cm³/ : 1.1...1.6

100 s: (0.8...1.8)

Spread cm³ : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1500

Del. quantity : 216.0...218.0

1000 : (213.0...221.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Testing:

1st rack travel in: 11.80

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1370...1400
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 3.6
Speed rpm : 250
Rack travel in mm : 4.00...4.20
Rack travel in mm : 2.00
Speed rpm : 360...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.80...8.00
2nd pressure hPa : 310
Rack travel in m: 0.20...0.30
3rd pressure hPa : 1000
Rack travel in m: 4.60...4.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.00...4.20
Del.quantity cm³/ : 11.0...16.0
1000 s: (8.5...18.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 b2
 Edition : 23.10.91
 Replaces : 27.5.91
 Test oil : ISO-4113

Combination no. : 0 401 876 784

Injection pump
 Pump designation : PE6P120A32ORS3189
 EP type number : 0 411 826 759
 Governor
 Governor design. : RSV650...750P4A421-7
 Governor no. : 0 421 833 359

Customer-spec. information
 Customer : PENTA

Engine : TID 71 AG

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00

M06

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 17.7...17.9

100 s: (17.4...18.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.5

Del.quantity cm³/ : 2.0...2.4

100 s: (1.7...2.7)

Spread cm³ : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 177.0...179.0

1000 : (174.0...182.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:
 1st rack travel in: 8.00
 Speed rpm : 750...755

2nd rack travel in: 4.00
 Speed rpm : 772...785

4th rack travel in: 900
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 84...92
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 480.0...520.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version
Rack travel in mm : 3.00...3.40
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 b3
Edition : 18.09.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 785
Injection pump
Pump designation : PE6P120A320RS3189
EP type number : 0 411 826 759
Governor
Governor design. : RSV650...750P4A421-8
Governor no. : 0 421 833 361

Customer-spec. information
Customer : PENTA

Engine : TD1210 G

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 019
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067
Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00

MO8

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 11.40...11.50
Del.quantity cm3/ : 24.3...24.5
100 s: (24.0...24.8)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 650.0
Rack travel in mm : 3.3...3.5
Del.quantity cm3/ : 2.0...2.4
100 s: (1.7...2.7)
Spread cm3 : 0.5
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 243.0...245.0
1000 : (240.0...248.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Testing:
1st rack travel in: 10.40
Speed rpm : 748...753
2nd rack travel in: 4.00
Speed rpm : 781...794

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 84...92
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 748...753

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 480.0...520.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.50
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.0...27.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:

APPLICATION

Generator

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 b4
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 789
 Injection pump
 Pump designation : PE6P120A320RS3189
 EP type number : 0 411 826 759
 Governor
 Governor design. : RSV650...750P4A421-9
 Governor no. : 0 421 833 364

Customer-spec. information
 Customer : PENTA

Engine : TD710G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

 Rack travel in mm : 8.00...8.10

 Del.quantity cm³/ : 15.9...16.1
 100 s: (15.6...16.4)

 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 650.0
 Rack travel in mm : 3.3...3.5
 Del.quantity cm³/ : 2.0...2.4
 100 s: (1.7...2.7)
 Spread cm³ : 0.5
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 159.0...161.0
 1000 : (156.0...164.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Testing:
 1st rack travel in: 7.00
 Speed rpm : 750...755
 2nd rack travel in: 4.00
 Speed rpm : 772...785

4th rack travel in: 900
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 85...93
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.00
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 480.0...520.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.0...27.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,1 b5
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 790

Injection pump
 Pump designation : PE6P120A32ORS3189
 EP type number : 0 411 826 759
 Governor
 Governor design. : RSV650...750P4A421
 -10
 Governor no. : 0 421 833 369

Customer-spec. information
 Customer : PENTA

Engine : TD 1010G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 21.7...21.9

100 s : (21.4...22.2)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.5

Del.quantity cm³/ : 2.0...2.4

100 s : (1.7...2.7)

Spread cm³ : 0.5

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 7.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 772...785
4th rack travel in: 900
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 84...92
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.90
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 480.0...520.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.50
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.0...27.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9g11
 Edition : 28.06.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 036 066A

Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1100PA845
 Governor no. : 0 421 801 380

Cust. part no. : 3-7166

Customer-spec. information
 Customer : MAN

Engine : D2866 F/UM

1st version kW : 152.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 10.0...10.3

100 s: (9.7...10.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 100.0...103.0

1000 : (97.5...105.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.90

Speed rpm : 1095...1110

2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 250
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 10.90...11.00
2nd speed rpm : 1050
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 111.0...115.0
1000 s: (108.0...118.0)
Speed rpm : 500
Del.quantity cm3/ : 91.0...95.0
1000 s: (88.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...130.0
1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250

M15

Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 15.0...20.0
1000 s: (12.5...22.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 7,7 b
 Edition : 08.10.91
 Replaces : 5.7.91
 Test oil : ISO-4113

Combination no. : 0 402 046 343

Injection pump
 Pump designation : PES6P120A720RS3275
 EP type number : 0 412 026 745
 Governor
 Governor design. : RQV300...1100PA954-1
 K
 Governor no. : 0 421 815 273

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8360.46.016

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.2...4.6
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145
 travel mm : 10.60...10.80

2nd speed rpm : 300
 travel mm : 1.00...1.40

3rd speed rpm : 850
 travel mm : 6.60...7.00

4th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900
 Aneroid pressure h: 1000
 Del.quantity : 183.0...185.0
 1000 : (180.0...188.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 10.00
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 300
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION
Speed rpm : 340...450

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.50...11.60
2nd speed rpm : 1100
Rack travel in m: 10.90...11.10
3rd speed rpm : 700
Rack travel in m: 10.60...10.90
4th speed rpm : 350
Rack travel in m: 9.00...9.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 550
Rack travel in m: 10.40...10.50
3rd pressure hPa : 320
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 164.0...170.0
1000 s: (161.0...173.0)
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 157.0...163.0
1000 s: (154.0...166.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 95.0...97.0
1000 s: (92.0...100.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...150.0
1000 s: (116.0...154.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.60
Del.quantity cm3/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 j 4
Edition : 30.10.91
Replaces : 21.06.91
Test oil : ISO-4113
Combination no. : 0 402 648 844
Injection pump
Pump designation : PE8P12DA320LS7816
EP type number : 0 412 628 829
Governor
Governor design. : RQ300/1050PA717-2
Governor no. : 0 421 801 439

Cust. part no. : T3

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 23.4...23.7

100 s: (23.1...24.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.5
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.5
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 234.0...237.0
1000 : (231.0...240.0)
Spread cm3 : 4.00
1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 14.40...14.60
3rd speed rpm : 850
Rack travel in m: 15.00...15.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600
1st pressure hPa : 350
Rack travel in m: 11.10...11.30
2nd pressure hPa : 650
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1050
Rack travel in m: 13.70...13.90 *
4th pressure hPa : 1350
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del.quantity cm3/ : 252.0...256.0
1000 s: (249.0...259.0)
Spread cm3 : 7.00
1000 s: (10.0)
Aneroid pressure h: 1600
Speed rpm : 850
Del.quantity cm3/ : 270.0...274.0
1000 s: (267.0...277.0)
Spread cm3 : 7.00
1000 s: (10.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm3 : 7.00
1000 s: (10.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a12
 Edition : 08.10.91
 Replaces : 8.6.90
 Test oil : ISO-4113

Combination no. : 9 400 230 097

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A0C2190
 -8R
 Governor no. : 9 420 234 137

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M20

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.5...126.5

1000 : (122.5...128.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3915959

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 3
 Edition : 18.09.91
 Replaces : 8.6.90
 Test oil : ISO-4113
 Combination no. : 9 400 230 107
 Injection pump
 Pump designation : PES6A1000320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1200AB1233R
 Governor no. : 9 420 231 018

Customer-spec. information
 Customer : C.D.C

Engine : 6CT830

1st version kw : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.6...4.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.00...0.20

2nd speed rpm : 350
 travel mm : 1.00...1.50

3rd speed rpm : 450
 travel mm : 1.90...2.40

4th speed rpm : 1200
 travel mm : 6.90...6.90

5th speed rpm : 1350
 travel mm : 8.15...8.65

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1435

Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200

Aneroid pressure h: 700
Del.quantity : 113.0...115.0
1000 : (111.0...117.0)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 40...46

Testing:

1st rack travel in: 9.80
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 4.60...4.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 260
Rack travel in m: 9.90...10.00
3rd pressure hPa : 345
Rack travel in m: 10.30...10.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 84.5...88.5
1000 s: (82.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3908558

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a6
Edition : 28.10.91
Replaces : 4.3.87
Test oil : ISO-4113

Combination no. : 9 400 231 007

Injection pump
Pump designation : PES6P110A72ORS370
Governor
Governor design. : RSV400...1050PO/451D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 11.95...12.05
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.95...12.05

Del.quantity cm³/ : 16.5...16.7

100 s : (16.2...17.0)

Spread cm³ : 0.4

100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6.2...6.4
Del.quantity cm³/ : 1.7...2.3

100 s : (-)

Spread cm³ : 0.4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 164.6...166.6

1000 : (161.6...169.6)

Spread cm³ : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.00

Speed rpm : 1095...1105

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.30

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 11.95...12.05
2nd speed rpm : 650
Rack travel in m: 12.35...12.45

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 800
Pressure hPa : 380
Rack travel mm : 11.45...11.55

Measurement

Speed 1/min : 800

1st pressure hPa : 190
Rack travel in m: 9.80...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 169.0...172.0
1000 s: (166.0...175.0)

Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 91.0...97.0
1000 s: (88.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 180...200
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm³/ : 48.0...58.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 17.0...23.0
1000 s: (-)

Remarks: JOHN DEERE # AR 88763
On activation of the starting solenoid,
the start position must be reached.

Acceleration from start to full load
with n = 400...750 min. -1

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 i5
Edition : 4.11.91
Replaces : 22.3.90
Test oil : ISO-4113

Combination no. : 9 400 231 179

Injection pump
Pump designation : PES6P120A720RS7011
Governor
Governor design. : RQV325...875PA701K

Cust. part no. : *

Customer-spec. information
Customer : MACK

Engine : EM 6-300 L-4VH

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 0.30

Opening
pressure, bar : 300...308

Test lines : 9 681 230 735

Outside diameter
x Wall thickness
x Length mm : 6.35x1.70x838.20

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
Rack travel in mm : 8.00...9.00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 18.8...19.0
 100 s : (18.5...19.3)

Spread cm³ : 0.6
 100 s : (0.9)

2nd speed rpm : 325
Rack travel in mm : 5.10...5.30
Del. quantity cm³/ : 3.3...3.7
 100 s : (3.1...3.9)
Spread cm³ : 0.7
 100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 965
Rack travel in mm : 9.00...9.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 875
Del. quantity : 188.0...190.0
 1000 : (185.0...193.0)
Spread cm³ : 6.0
 1000 : (9.0)

RATED SPEED

1st version
Control lever
position degrees: 57...61

Testing:
1st rack travel in: 9.40
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 985...1015
4th rack travel in: 1050
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...19

Testing:
Speed rpm : 275
Minimum rack trave: 6.90
Speed rpm : 400

Rack travel in mm : 2.70...4.10
Rack travel in mm : 2.70
Speed rpm : 435...510

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.40
2nd speed rpm : 700
Rack travel in m: 11.90...12.10
3rd speed rpm : 600
Rack travel in m: 14.40...14.50
4th speed rpm : 510
Rack travel in m: 15.70...15.80
5th speed rpm : 450
Rack travel in m: 15.10...15.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : -
1000 s: (219.5...228.5)
Speed rpm : 510
Del.quantity cm³/ : 283.0...291.0
1000 s: (281.0...293.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...220.0
1000 s: (150.0...230.0)

LOW IDLE

Speed rpm : 325
Del.quantity cm³/ : 33.0...37.0
1000 s: (31.0...39.0)
Spread cm³ : 7.5
1000 s: (10.0)

Remarks:

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

The test specifications apply to test-

M27

ing of the injection-pump assembly with
the genuine engine/nozzle-and-holder
assembly

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,8 i 5
 Edition : 24.10.91
 Replaces : 3.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 253
 Injection pump
 Pump designation : PES4A80D410RS2094Z
 EP type number : 0 410 884 033
 Governor
 Governor design. : RSV350...900A7B2076L
 Governor no. : 9 420 083 152

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 314

1st version kW : 41.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.60...9.70

Del. quantity cm³/ : 5.2...5.3

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.7...7.9

Del. quantity cm³/ : 1.9...2.2

100 s: (1.7...2.3)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 52.0...53.0

1000 : (50.5...54.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.60

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 960...990

4th rack travel in: 1050

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3
Speed rpm : 350
Rack travel in mm : 7.70...7.90
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 550
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 9.60...9.70
2nd speed rpm : 550
Rack travel in m: 9.60...9.70
5th speed rpm : 400
Rack travel in m: 10.80...11.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 73.0...83.0
1000 s: (70.0...86.0)
Rack travel in mm : 14.20...14.80

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.70...7.90
Del.quantity cm³/ : 19.0...22.0
1000 s: (17.5...23.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 i 2
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 263
 Injection pump
 Pump designation : PES6A90D320RS2605
 EP type number : 9 400 083 078
 Governor
 Governor design. : RSV325...900A1B2132R
 Governor no. : 9 420 083 158

Customer-spec. information
 Customer : MWM

Engine : TD 229-6

1st version kW : 89.7
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00

NO2

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 7.3...7.4

100 s: (7.1...7.6)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 73.0...74.0

1000 : (71.0...76.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 9.20
Speed rpm : 920...930
2nd rack travel in: 4.00
Speed rpm : 950...970
4th rack travel in: 1050
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 325
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 370...430
Speed rpm : 500
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 375
Rack travel in m: 11.00...11.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 920...930

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 13.5...17.5
1000 s: (11.5...19.5)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

NO3

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a11
Edition : 24.10.91
Replaces : 24.11.89
Test oil : ISO-4113
Combination no. : 9 407 083 279
Injection pump
Pump designation : PES6A80D320RS1271
EP type number : 9 400 083 058
Governor
Governor design. : RSV350...1400A2B2179
-R
Governor no. : 9 420 083 165

Customer-spec. information
Customer : MWM

Engine : D229-6

1st version kW : 100.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

N04

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.00...10.10

Del.quantity cm3/ : 5.8...5.9
100 s: (5.7...6.1)

Spread cm3 : 0.2
100 s: (0.4)

2nd speed rpm : 350.0
Rack travel in mm : 7.1...7.3
Del.quantity cm3/ : 0.9...1.2
100 s: (0.7...1.3)
Spread cm3 : 0.2
100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del.quantity : 58.5...59.5
1000 : (57.0...61.0)
Spread cm3 : 2.50
1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 98...106

Testing:
1st rack travel in: 9.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1650
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 640...700
Speed rpm : 850
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 800
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)
Speed rpm : 800
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm³/ : 9.0...12.0
1000 s: (7.5...13.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 5,9 a 1
 Edition : 24.10.91
 Replaces : 9.84
 Test oil : ISO-4113
 Combination no. : 9 407 083 281
 Injection pump
 Pump designation : PES6A80D32ORS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1150A2B2129
 -1R
 Governor no. : 9 420 083 167

Customer-spec. information
 Customer : MMM

Engine : D 229-6

1st version kW : 77.2
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 4.9...5.0

100 s: (4.8...5.2)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.7...1.0

100 s: (0.5...1.1)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 49.5...50.5

1000 : (48.0...52.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 40...48

Testing:

1st rack travel in: 8.50
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 680...740
Speed rpm : 800
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 11.00...11.10
3rd speed rpm : 900
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)
Speed rpm : 900
Del.quantity cm³/ : 51.5...53.5
1000 s: (49.5...55.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 7.0...10.0
1000 s: (5.5...11.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 i
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 282
 Injection pump
 Pump designation : PES6A90D320RS2605
 EP type number : 9 400 083 078
 Governor
 Governor design. : RSV325...1400A2B2096
 R
 Governor no. : 9 420 083 168

Customer-spec. information
 Customer : MWM

Engine : TD 229-6

1st version kW : 95.6
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

N08

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 8.00...8.10

Del. quantity cm³/ : 6.5...6.6

100 s: (6.3...6.8)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 65.0...66.0

1000 : (63.0...68.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 52...60

Testing:

1st rack travel in: 7.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1465...1495
4th rack travel in: 1650
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 325
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 620...680

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 8.00...8.10
2nd speed rpm : 500
Rack travel in m: 8.90...9.00
3rd speed rpm : 800
Rack travel in m: 8.40...8.70
4th speed rpm : 1200
Rack travel in m: 8.00...8.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 50.0...52.0
1000 s: (47.5...54.5)
Speed rpm : 800
Del.quantity cm³/ : 52.0...54.0
1000 s: (49.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 9.5...13.5
1000 s: (7.5...15.5)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,9 b
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 283
 Injection pump
 Pump designation : PES3A80D320RS1281
 EP type number : 9 400 083 054
 Governor
 Governor design. : RSV350...1150A2B2129
 -1R
 Governor no. : 9 420 083 167

Customer-spec. information
 Customer : MWM

Engine : D 229-3

1st version kW : 55.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 046
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

N10

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 9.40...9.50
 Del. quantity cm³/ : 5.1...5.2
 100 s : (4.9...5.3)
 Spread cm³ : 0.2
 100 s : (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.9...1.2
 100 s : (0.8...1.4)
 Spread cm³ : 0.2
 100 s : (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 51.0...52.0
 1000 : (49.5...53.5)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 43...51

Testing:

1st rack travel in: 8.40
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 650...710
Speed rpm : 800
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
3rd speed rpm : 900
Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 52.5...54.5
1000 s: (50.5...56.5)
Speed rpm : 900
Del.quantity cm3/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 9.5...12.5
1000 s: (8.0...14.0)
Spread cm3 : 2.00
1000 s: (3.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 3,9 b 6
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 284
 Injection pump
 Pump designation : PES4A80D320RS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1150A2B2129
 -1R
 Governor no. : 9 420 083 167

Customer-spec. information
 Customer : MMM

Engine : D 229-4

1st version kW : 53.5
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.80...8.90

Del.quantity cm³/ : 4.9...5.0

100 s: (4.8...5.2)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.7...1.0

100 s: (0.5...1.1)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 49.5...50.5

1000 : (48.0...52.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control Lever
position degrees: 42...50

Testing:

1st rack travel in: 7.90
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 640...700
Speed rpm : 800
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 8.80...8.90
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 900
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 53.5...56.5
1000 s: (51.5...58.5)
Speed rpm : 900
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 7.90
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 7.0...10.0
1000 s: (5.5...11.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 b
Edition : 24.10.91
Replaces : 18.9.86
Test oil : ISO-4113

Combination no. : 9 407 083 285

Injection pump
Pump designation : PES4A80D320RS1282
EP type number : 9 400 083 056
Governor
Governor design. : RS350/1500A2B2073-1R
Governor no. : 9 420 083 186

Customer-spec. information
Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1480

Rack travel in mm : 9.20...9.30

Del. quantity cm³/ : 5.6...5.7

100 s: (5.5...5.9)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 0.5...0.8

100 s: (0.4...1.0)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1480

Del. quantity : 56.5...57.5

1000 : (55.0...59.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 8.20

Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1570...1600
4th rack travel in: 1700
Speed rpm : 0.30...1.70

Remarks:

:

LOW IDLE 1

Control lever
position degrees: 30...38
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 300
Minimum rack trave: 6.50
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 4.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 3.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1480
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 800
Rack travel in m: 10.30...10.60
4th speed rpm : 1000
Rack travel in m: 10.00...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 56.5...58.5
1000 s: (54.5...60.5)
Speed rpm : 1000
Del.quantity cm³/ : 59.5...61.5
1000 s: (57.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a10
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 286
 Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1500A2B2028
 -1R
 Governor no. : 9 420 083 175

Customer-spec. information
 Customer : MWM

Engine : D 229-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 046
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1480
 Rack travel in mm : 9.20...9.30
 Del. quantity cm³/ : 4.9...5.0
 100 s: (4.8...5.2)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.7...1.0
 100 s: (0.6...1.2)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1480
 Del. quantity : 49.5...50.5
 1000 : (48.0...52.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:

1st rack travel in: 8.20
Speed rpm : 1520...1530
2nd rack travel in: 4.00
Speed rpm : 1560...1590
4th rack travel in: 1700
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 600...660
Speed rpm : 750
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1480
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
3rd speed rpm : 1300
Rack travel in m: 9.40...9.60
4th speed rpm : 1000
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 51.5...53.5
1000 s: (49.5...55.5)
Speed rpm : 1000
Del.quantity cm3/ : 55.5...57.5
1000 s: (53.5...59.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1520...1530

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 7.5...10.5
1000 s: (6.0...12.0)
Spread cm3 : 2.00
1000 s: (3.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a 9
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 287
 Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1000A1B628-1R
 Governor no. : 9 420 083 176

Customer-spec. information
 Customer : MWM

Engine : D 229-6

1st version kW : 70.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1025

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 4.2...4.3

100 s: (4.1...4.5)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.7...1.0

100 s: (0.6...1.2)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1025

Del.quantity : 42.5...43.5

1000 : (41.0...45.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control Lever
position degrees: 52...60

Testing:
1st rack travel in: 8.00
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1
Control Lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 550...610
Speed rpm : 700
Maximum rack travel: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1025
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 700
Rack travel in m: 10.10...10.30
4th speed rpm : 900
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del. quantity cm³/ : 47.5...49.5
1000 s: (45.5...51.5)
Speed rpm : 700
Del. quantity cm³/ : 47.5...49.5
1000 s: (45.5...51.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del. quantity cm³/ : 7.5...10.5
1000 s: (6.0...12.0)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

APPLICATION :

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a 8
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 288
 Injection pump
 Pump designation : PES6A80D32ORS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1100A2B664-1R
 Governor no. : 9 420 083 177

Customer-spec. information
 Customer : MWM

Engine : D 229-6

1st version kW : 66.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.20...9.30

Del. quantity cm³/ : 4.6...4.7

100 s : (4.5...4.9)

Spread cm³ : 0.2

100 s : (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 0.7...1.0

100 s : (0.5...1.1)

Spread cm³ : 0.2

100 s : (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 46.5...47.5

1000 : (45.0...49.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 39...47

Testing:
1st rack travel in: 8.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 510...570
Speed rpm : 650
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 9.20...9.40
5th speed rpm : 400
Rack travel in m: 10.10...10.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del. quantity cm³/ : 7.0...10.0
1000 s: (5.5...11.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

APPLICATION :

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a 7
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 289
 Injection pump
 Pump designation : PES6A80D32ORS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1200A2B1108
 -1R
 Governor no. : 9 420 083 178

Customer-spec. information
 Customer : MWM

Engine : D 229-6

1st version kw : 84.5
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 5.2...5.3

100 s: (5.1...5.5)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.7...1.0

100 s: (0.5...1.1)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 52.5...53.5

1000 : (51.0...55.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 8.70
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 630...690
Speed rpm : 800
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.70...9.80
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 800
Rack travel in m: 10.80...11.00
4th speed rpm : 1000
Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 56.5...58.5
1000 s: (54.5...60.5)
Speed rpm : 800
Del.quantity cm³/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

N23

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

APPLICATION :

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a 6
 Edition : 24.10.91
 Replaces : 4.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 290
 Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1000A1B2029
 -1R
 Governor no. : 9 420 083 179

Customer-spec. information
 Customer : MWM

Engine : D 229-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 046
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.70...9.80
 Del.quantity cm³/ : 4.9...5.0
 100 s: (4.7...5.1)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del.quantity cm³/ : 0.7...1.0
 100 s: (0.5...1.1)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 49.0...50.0
 1000 : (47.5...51.5)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 51...59

Testing:

1st rack travel in: 8.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 540...600
Speed rpm : 670
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 9.70...9.80
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 700
Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 53.5...55.5
1000 s: (51.5...57.5)
Speed rpm : 700
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

N25

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 7.0...10.0
1000 s: (5.5...11.5)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 b 5
 Edition : 24.10.91
 Replaces : 7.3.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 296
 Injection pump
 Pump designation : PES4A80D32ORS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1500A2B2122
 -2R
 Governor no. : 9 420 083 170

Customer-spec. information
 Customer : MWM

Engine : D 229-4

1st version kW : 64.0
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 6.0...6.1

100 s : (5.8...6.2)

Spread cm³ : 0.2

100 s : (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 0.7...1.0

100 s : (0.6...1.2)

Spread cm³ : 0.2

100 s : (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del. quantity : 60.0...61.0

1000 : (58.5...62.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 62...70

Testing:

1st rack travel in: 9.20
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1610...1640
4th rack travel in: 1800
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 670...730
Speed rpm : 800
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 800
Rack travel in m: 11.00...11.30
4th speed rpm : 1100
Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)
Speed rpm : 800
Del.quantity cm3/ : 58.5...61.5
1000 s: (56.5...63.5)
Speed rpm : 1100
Del.quantity cm3/ : 60.5...62.5
1000 s: (58.5...64.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20

Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 7.5...10.5
1000 s: (6.0...12.0)
Spread cm3 : 2.00
1000 s: (3.50)

Remarks: